Identifying Antisocial Youth Through Broad and Specific Measures of Personality

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Abstract

Although antisocial and psychopathic traits have been linked to predatory and violent types of juvenile offending, much of what is known about these traits stems from adult-centered research. Identifying antisocial youth with reliable tools early in development could improve the prognosis of interventions. With a community sample of adolescents (N = 396, M_{age} = 14.64, SD = 1.52, n_{girls} = 230, 58%, n_{boys} = 164, 42%), the HEXACO-PI-R accounted for 57% of the variance in the APSD-YV. Lower ratings of Honesty-Humility, Agreeableness, and Conscientiousness were associated with higher ratings of psychopathy, $F(18, 956.49) = 18.347$, $p < .001$, Wilk's $\lambda = .432$. The HEXACO-PI-R was associated with a range of antisocial outcomes, including lower intensity antisocial beliefs and attitudes, however, the APSD-YV had stronger associations with higher intensity antisocial behaviours. Findings suggest that the assessment of youth antisociality may benefit from the inclusion of both broad and specific measures of personality.

Keywords: Adolescence, antisociality, personality, psychological assessment, psychopathy

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Introduction

One way to better understand the complex social world humans live in is through the study of personality (Bouchard & Loehlin, 2001). Personality can be defined as a unique cluster of psychological traits that impact an individual's thoughts, feelings, and behaviours (Million, 2016). Because the broad traits that form individuals' personality can help account for patterns in their behaviours and responses to the environment, personality can also be used to study the links between traits and antisociality (da Silva et al., 2012; Murphy & Davidshofer, 2004). Antisociality can refer to a wide range of socially deviant or criminal traits, behaviours, and attitudes that relate to poor outcomes within different facets of one's life (e.g., friendships, family relationships, academics or grades, and criminal experiences).

One specific personality construct that has been particularly important for the study of antisocial behaviour is psychopathy. Psychopathy is thought to be a personality disorder characterized by a constellation of interpersonal and affective traits (e.g., grandiose sense of self-worth, callous/lack of empathy), as well as behavioural and antisocial characteristics (e.g., irresponsibility, juvenile delinquency). As stated by psychopathy researcher Robert Hare, the prevalence of psychopathic personality disorder in the general population is approximately 1% (Hare, 1993). With a population of about 36.60 million, about 366,000 individuals in Canada may be considered psychopathic. Psychopaths commit a disproportionate amount of violent crime, and they also tend to cause a significant degree of harm to others without incurring feelings of remorse (Hare, 1993). However, because psychopathy research has traditionally focused on university, forensic, or clinical samples of children (i.e., 6-13 years old) and adults (i.e., greater than

18 years old), less is known about how psychopathic traits relate to various antisocial attitudes and behaviours among adolescents (Kotler & McMahon, 2005).

Researchers have found links between certain personality traits that present early in development (e.g., callousness) with more severe, violent, predatory types of juvenile offending (Fanti et al., 2009). Yet, whether a measure that assesses broad facets of an individual's personality, or a measure that focuses on a specific subset of psychopathic traits, has greater theoretical and practical advantages for measuring adolescent antisocial behaviour it is still relatively unknown. Identifying antisocial youth earlier in development has the potential to improve intervention outcomes and prevent harm to victims. Generating a better understanding on which traits can serve as potential warning signs of early adolescent antisociality and how to best measure those traits is crucial.

Proposed Research Objectives

My study had three primary objectives. The first objective was to explore how ratings on a broad factor personality measure, the HEXACO-PI-R, would relate to ratings on a specific measure of psychopathy, the APSD-YV. The second objective was to determine whether the HEXACO-PI-R factors were associated with a range of antisocial outcomes, from lower intensity antisociality (e.g., incivility in the classroom) to higher intensity antisociality (e.g., criminal behaviour). The third objective was to examine how the HEXACO-PI-R or the APSD-YV would compare or compete in terms of their associations with the same range of antisocial outcomes. Ultimately, I hope to put forth recommendations for what types of personality measures can be the most useful in predicting adolescent antisocial attitudes and behaviours. I also hope to be able to offer

theoretical and practical insights into the value of broad versus specific measures of personality.

Adolescent Broad Personality

The concept of personality stems from the thousand-year-old word "persona" used to describe a theatrical mask worn by actors (Million, 2016). Presently, personality can be defined as a "constellation of predispositions, distinctive endogenous and lasting manners of thinking, acting, and feeling" (da Silva et al., 2012, p. 273). A founding figure of personality, American psychologist and trait theorist Gordon Allport, stated that personalities are composed of fundamental traits, characteristic behaviours, and conscious motives (Allport & Vernon, 1930). Allport believed that studying personality was the best way to understand an individual, but Allport also discussed the value of examining individuals' stable and historical patterns of behaviour in relation to their conscious and present motives (Allport & Vernon, 1930). Research has traditionally been in line with such ideas, showing that traits and behaviours can both serve as reliable indicators for how an individual will generally respond to their environment.

Broad changes to personality traits tend to occur during adolescence, such as common adult-like personality transitions. This can include, for example, changes within the broad Five-Factor Model/The Big Neuroticism factor, or increases in the Agreeableness, Conscientiousness, Extraversion, and Openness factors of the Six-Factor Model/HEXACO-PI-R (Jones, Miller, & Lynam, 2011; Klimstra, 2013). In addition, other broad changes to traits can be influenced by factors in the environment like adolescents' social relationships, education, occupation, and general health (Klimstra, 2013). Traits begin to set during the transitional period of adolescence to adulthood, but

the continued malleability of traits enables the environment to influence the development of personality long after adolescence (da Silva et al., 2012; Workman & Reader, 2004). Even though individuals may experience some broad shifts with regards to the development of their traits, literature has supported the idea that traits are highly stable in adulthood and at least moderately stable during childhood (da Silva et al., 2012; Jones, Miller, & Lynam, 2011).

In addition to questions regarding trait stability, researchers have questioned whether fewer higher order (i.e., broad, global) or several lower order (i.e., specific, specialized) traits may have stronger associations with different outcomes. Currently, broad higher order traits are gaining momentum as being more practical in applied work (Bouchard & Loehlin, 2001; Jones, Miller, & Lynam, 2011). The development of factorial structural models of personality in the 1980s gave rise to the idea that personality could be understood with a top-down hierarchical approach, where broad traits are composed of several more specific traits (Bouchard & Loehlin, 2001; Lee & Ashton, 2004). Because hierarchical personality models can be statistically-factored in different ways, depending on the discretion of the researcher, several well-known personality models have emerged that are still being employed within personality research today (e.g., NEO-PI-R, the Five-Factor Model/The Big Five, the Six-Factor Model/The HEXACO; the Sixteen-Factor Model) (Bouchard & Loehlin, 2001).

The HEXACO Personality Inventory-Revised (HEXACO-PI-R). One example of a commonly used broad personality measure is the 60-item HEXACO Personality Inventory-Revised (HEXACO-PI-R) developed by Lee and Ashton (2004). The HEXACO-PI-R is a six-factor broad personality inventory with 24 defining facet levels.

The six broad personality factors measured within the HEXACO-PI-R include Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience (Lee & Ashton, 2004).

One important difference between the HEXACO model and other broad measures of personality, like the Five-Factor Model/The Big Five, is the ability for the HEXACO to account for socially malevolent traits through the Honesty-Humility factor, which contrasts prosocial and antisocial traits (Book et al., 2015; Furnham et al., 2013; Lee & Ashton, 2012). Within antisociality research, the Honesty-Humility Factor may broadly highlight the elements of an individual's personality that reflect lower Sincerity (e.g., subtle manipulation of others), lower Fairness (e.g., driven by self-interest at the cost of others), lower Modesty (e.g., elevated superficiality), and lower Greed Avoidance (e.g., feelings of superiority and entitlement) (Ashton & Lee, 2007; Furnham et al., 2013; Lee & Ashton, 2004).

An individual who has particularly lower levels of Honesty-Humility, as well as lower ratings on other HEXACO-PI-R factors like Emotionality, Agreeableness, and Conscientiousness may have differences in the degree and frequency of antisociality outcomes, as well as the types of antisocial behaviours that they engage in (Book et al., 2015; Lee & Ashton, 2004). For example, lower Emotionality of the HEXACO-PI-R has the potential to heighten the severity of an individual's violent behaviour, as individuals with lower Emotionality may have lower attachment to others or fear of being caught (Fanti et al., 2009; Hare, 1993; Kotler & McMahon, 2005). Lower Agreeableness (e.g., the tendency to hold a grudge against others or to be critical, stubborn and argumentative) can contribute to greater aggression and has been strongly associated

with psychopathy (Jones, Miller, & Lynam, 2011). Finally, lower Conscientiousness, or a tendency to act on impulse without considering possible consequences, is a characteristic that could lead to a greater propensity for higher risk-taking behaviours, including substance use, sexual promiscuity, and reckless driving (Lee & Ashton, 2012).

In early identification contexts, broad measures of personality can have a number of advantages over specialized measures. Broad personality measures such as the HEXACO-PI-R are void of highly stigmatizing labels and unreliable diagnoses. Other advantages may include greater cross-cultural validity, proposed evolutionary mechanisms for factors, unique genetic heritability, and strong theoretical support (Ashton & Lee, 2007; Book et al., 2015). Because broad measures like the HEXACO-PI-R are not discrete or confined to a specific personality construct (e.g., narcissism), they can provide a greater amount of information about an individual's personality and connect to a wider range of literature. Additionally, in a sample of Canadian undergraduate students, researchers have found that the HEXACO-PI was able to account for 93% of the variance in self-reported psychopathy (Book et al., 2015). Potentially, the HEXACO-PI-R can have a considerable advantage over other specific self-report psychopathy measures, which may be accompanied by theoretical and practical costs (e.g., stigmatizing labels, less reliability).

If broader measures of personality with their advantages (e.g., cross-cultural validity), could additionally encompass some of the advantages of specific measures (e.g., ability to predict antisociality) without some of the costs (e.g., poor reliability), than the use of broad personality measures in adolescent antisociality research could be especially important. Despite the advantages of being a broad measures of personality, a

wider range of information on an individual's personality is generated and the measure may be unable to detect some of the subtle details of an underlying developmental construct. Moreover, individuals who exhibit certain traits may be misidentified or labeled as high-risk due to a wider net. Theoretically, the number of individuals who receive a treatment or intervention who do not actually need it (i.e., false positives) might increase, which could lead to greater resource costs and unnecessary harm to adolescents (e.g., increasing time and resources spent, misdiagnosis due to lack of specificity) (Million, 2016).

Adolescent Antisocial Personality Traits

Although the term antisocial may refer to individuals who are asocial (i.e., lower in extraversion, engaging in less in social interactions), this study uses the term antisocial or antisociality to refer to a wide range of behaviours and attitudes that increase the risk of having poor academic, relational, deviant, or criminal outcomes (Gumpel, 2014). Antisociality can encompass behaviours like bullying, cheating, stealing, drug use, property crime, relational abuse, and physical violence (Baughman et al., 2012; Farrington & Coid, 2003). Measuring adolescent antisociality with reliable tools is crucial, as adolescents are more likely to engage in risky antisocial behaviour than individuals within any other developmental stage of the life cycle (Ellis et al., 2012).

Specific measures, such as measures of adolescent antisocial personality traits (e.g., manipulativeness, deception), have the capacity to predict later adult antisociality, violence, and chronic reoffending (Kotler & McMahon, 2005). Throughout adolescence, traits like egocentrism, hostility, and callousness, have been shown to increase the probability that an individual will interact with criminogenic environments (Farrington &

Coid, 2003; Forouzan & Nicholls, 2015). Also, as highlighted by longitudinal research, antisocial behaviour often begins during childhood or adolescence (Barry et al., 2000; Farrington & Coid, 2003; Lynam et al., 2007). Generating a better understanding on the traits that might be considered early warning signs of antisocial behaviour (e.g., stealing and poor classroom discipline) may help to identify adolescents who are at risk for continuing antisocial behaviour into adulthood (Arbuckle & Cunningham, 2012; Gumpel, 2014).

Adolescent Psychopathy. Despite being described as being the "single construct capable of linking the dots of antisocial behavior over the life span", psychopathy research has often focused on adults and less on adolescents, (da Silva et al., 2012, p. 270). As mentioned previously, psychopathy is best understood as a personality disorder composed of several key interpersonal traits (e.g., superficial charm, narcissism) and behaviours (e.g., lack of realistic long-term goals, irresponsibility) (Forouzan & Nicholls, 2015; Hare, 1993). Much of the recent work on child psychopathy came from Frick, Lynam, and colleagues, though psychologist Hervey Cleckley described psychopathy as being a disorder that has its roots in childhood and adolescence as early as the 1940s (Barry et al., 2000; da Silva et al., 2013; Kotler & McMahon, 2005). Research has shown that early conduct problems and dark traits (e.g., callousness) in childhood are not only associated with delinquency, criminality, violence, but also with psychopathy in adulthood (da Silva et al., 2012). However, since personality traits are still flexible to change, labels can be stigmatizing, and children or adolescents may exhibit many of the characteristics associated with adult psychopathy (e.., irresponsibility, lying) both researchers and the general society alike continue to struggle with the idea that

psychopathy could be extended to younger populations (Kotler & McMahon, 2005).

Psychopathy research conducted with younger and older adolescents has often focused on adolescents' relationships with others, and with outcomes specifically related to schooling. For example, because adolescents who are higher in psychopathy tend to exhibit negative interpersonal characteristics like intrusiveness, lying, and manipulation, they tend to have poor relationships with their peers (e.g., bullying, antisocial peer networks) and authority figures (e.g., disrespecting teachers, challenging supervisors) (Forouzan & Nicholls, 2015; Gumpel, 2014). One study using a college sample found that school difficulties like feeling disconnected from school, hyper-competiveness, plagiarism, and cheating, were associated with higher ratings of self-reported psychopathy (Arbuckle & Cunningham, 2012; Gumpel, 2014). Individuals higher in psychopathy tend to have a lower commitment to education, lower grades, earlier sexual activity, greater frequency of grade failures, and a decreased probability of graduating from high school (Farrington & Coid, 2003). Other types of school misbehaviours have also been associated with later instances of violent behaviour toward peers (Gumpel, 2014).

Most adolescent psychopathy measures have been constructed to model the gold standard psychopathy measure known as the Hare Psychopathy Checklist-Revised (PCL-R) developed by Robert Hare (1993), though such measures have been adapted to be more applicable for younger age groups (e.g., absence of items asking whether one has had many short-term marital relationships). With the PCL-R, participants receive a composite score assigned by a trained clinical interviewer between 0 to 40 (Hare, 1993). This clinical measure has been adapted for use with adolescents using clinical interviews

and the Psychopathy Checklist-Youth Version (PCL-YV; Forth, Kosson, & Hare, 2003), as well as with self-report measures like the Youth Psychopathic Traits Inventory (YPI; Andershed, Kerr, Stattin, & Levander, 2002), and the Antisocial Process Screening Device-Youth Version (APSD-YV; Frick & Hare, 2001) (da Silva et al., 2013). The Antisocial Process Screening Device-Youth Version in particular is one of "the most extensively utilized and tested measure of psychopathy in populations of children and adolescents" (Kotler & McMahon, 2005, p. 297). Yet, whether the traits measured by the APSD-YV are more strongly associated with antisocial behaviour and attitudes, above and beyond the broad traits within the Six-Factor/HEXACO-PI-R, is still unknown.

The Antisocial Process Screening Device-Youth Version (APSD-YV). The Antisocial Process Screening Device-Youth Version (APSD-YV) developed by Frick and Hare (2001) was originally titled the Psychopathy Screening Device (PSD) and was the first measure of child psychopathy to be appropriate for children below the age of 12 years old (i.e., specifically for 6-18 years old) (Kotler & McMahon, 2005). Like other psychopathy self-report measures, the APSD-YV was constructed to mimic both factors of the Hare Psychopathy Checklist-Revised (PCL-R) including the interpersonal Factor 1 and behavioural Factor 2, across each of its three subscales (Forouzan & Nicholls, 2015; Kotler & McMahon, 2005). The APSD-YV contains 20-items that can be rated by parents, teachers or youth, which can then be combined into a total or individual score for the subject (Kotler & McMahon, 2005). The three subscales in the APSD-YV are Callous-Unemotional, Narcissism, and Impulsivity (Frick & Hare, 2001).

Specialized measures like the APSD-YV often have a strong capacity to capture antisocial outcomes, including the potential indicators of underlying antisocial

personality development (e.g., psychopathy) that can be long-lasting (Hare, 1993). Personality disorders like psychopathy have been strongly related to reoffending and resistance to treatment, such as deceptively mimicking favourable treatment outcomes to receive rewards (e.g., faking remorse, note of good behaviour, early parole release) (da Silva et al., 2012; Hare, 1993; Malatesti & McMillan, 2010). Additionally, psychopathic adults tend to have the highest rates of recidivism, and children with antisocial traits are often especially resistant to prosocial efforts like empathy training that aim to reduce bullying in schools (Caldwell, 2011; da Silva et al., 2012; Hare, 1993; May & Beaver, 2014; Volk et al., 2012). A longitudinal study on delinquency and social problem behaviour found that 60% of adults with antisocial personality disorder only made minor improvements in the range, frequency, and severity of their antisocial behaviour across four to five decades (Farrington & Coid, 2003). Traits associated with personality disorders like psychopathy tend to be more rigid and less flexible to change. However, it is unclear whether individuals with such traits are less likely to experience broad changes to traits, or whether the absence of detection early in development and the passing of time (i.e., adulthood), could be partially responsible for their rigidity.

Identifying psychopathic traits with specific measures can have a number of advantages in self-report or assessment contexts. Because psychopathy is broadly related to higher rates of violent offending and other antisocial outcomes, specific measures can be critical for capturing a specific subset of characteristics that differentiates them from other groups of individuals that may initially seem broadly similar in type (Fanti et al., 2009; Kimonis, Frick, & Barry, 2004). For example, although psychopathy measures have various subcategories, the Callous-Unemotional subcategory in particular may

identify a subgroup of children with unique etiologies that exhibit earlier, more severe, and predatory types of juvenile offending than other children (Caldwell, 2011; Fanti et al., 2009; Kotler & McMahon, 2005; Viding, 2008). The importance of differentiating between clusters of antisocial or psychopathic adolescents can apply to other specific measures like the Dark Triad as well (i.e., Narcissism, Psychopathy, and Machiavellianism), where even though it is the Dark Triad personality constructs that are broadly examined, individuals higher in Machiavellianism could be considered as being more strategic, relationally aggressive, and less impulsive than psychopaths (Kerig & Stellwagen, 2010).

Another advantage of specialized measures is that they can reveal the critical but finer details that are missed with broad measures (Jones et al., 2011). Additionally, extreme scores on specific measures may potentially lead clinicians to provide individuals with a diagnosis or label (e.g., borderline personality disorder), which can lead to more opportunities to receive targeted resources or appropriate help (Jones, Miller, & Lynam, 2011). Labels can provide individuals with more resources and more conceptualized descriptions of a disorder or construct's etiology, rather than just a broader understanding (Jones, Miller, & Lynam, 2011).

However, there can be many consequences to labeling adolescents with constructs such as psychopathy, as reported by Steinberg (2002) who stated that "juveniles who are branded as psychopaths are more likely to be viewed as incorrigible, less likely to receive rehabilitative dispositions and, if it is an option, are more likely to be transferred to the criminal justice system, where they will be tried as adults and face the possibility of adult sanctions, including incarceration." Individuals who are labeled as

psychopathic are more likely to be found guilty and to be identified as high-risk, regardless of their age or gender (Blais & Forth, 2014). Finally, due to the narrow classifications of specialized assessments, individuals who might be close to receiving a diagnosis but do not (i.e., false negatives) may miss the opportunity to be identified and given support, decreasing the potential individual and societal impact of treatment (Million, 2016).

Adolescent Antisociality Through a Broad or Specific Personality Lens

Because broad and specific measures of personality, such as those used within the current study, have unique advantages and disadvantages, choosing between a broad or specific measure of personality can have an impact on who is identified and helped, as well as on the quality and quantity of resources that are spent (Farrington & Coid, 2003). In addition to overarching questions on how broad and specific measures may benefit the assessment of adolescent antisociality, other questions remain on whether traits are developmentally and evolutionarily better understood as belonging to the same broad developmental mechanisms (i.e., broad traits) operated differently depending on the person, or whether traits might instead belong to distinct pathways.

The reliable assessment of adolescent antisociality is a critical component of successful and holistic interventions (May & Beaver, 2014). Acquiring a greater understanding on whether general approaches to assessing adolescent antisociality that lack stigmatizing labels are equally valid, or as statistically powerful, as specialized measures that enable high-risk children to be identified can reduce risk (e.g., misdiagnosis) and help increase the reliability and validity of assessments.

Current Study

As discussed throughout this review, the representation of adolescents from community samples is slightly more limited within antisociality and psychopathy research, and even less is known about the potential associations that the Six-Factor/HEXACO-PI-R may have with a range of antisocial outcomes among adolescents (da Silva et al., 2012). Some of the main research gaps that I have illustrated in this review have led to the following research questions centered on whether two different types of personality measures will overlap, whether a broad measure of personality will be associated with a range of antisocial attitudes and behaviours, as well as whether a broad or a specific measure of personality will have a greater capacity to capture that same range of antisocial outcomes.

Research Questions

1) Will the broad measure of personality, the HEXACO-PI-R, account for variability in a specific measure of psychopathy, the APSD-YV?
2) Will a broad measure of personality, the HEXACO-PI-R, be related to antisocial attitudes and behaviors in adolescents like: Classroom Incivility, Deviant Attitudes, Aggression, Bullying, and Delinquency?
3) If the HEXACO-PI-R is associated with these aforementioned antisocial outcomes, how will the APSD-YV, a specific measure of psychopathy, compare or compete with the HEXACO-PI-R in terms of its relationships to those same outcomes (i.e., Classroom Incivility, Deviant Attitudes, Aggression, Bullying, and Delinquency)?

Methodology

Participants

The current study was part of a larger study on adolescent personality and relationships. A total sample of 428 adolescent participants were recruited from a range of extracurricular clubs, sports teams, and youth groups in Southern Ontario. Of that total sample of 428 adolescents, 27 adolescents who consistently gave the same numerical answers across multiple scales were removed from the dataset, which resulted in a sample of 401 adolescents. The only condition for participating in the present study was being between the ages of 12-18 years old. Because of this age condition for participating, 5 participants in total were over the age of 18 years old and were removed from the dataset, resulting in a sample of 396 adolescents (M_{age} = 14.64, *SD* = 1.52).

Of the 396 adolescents in the sample, 164 were male (42%) and 230 were female (58%). The majority of the adolescents were in either Grade 9 (*n* = 88, 22%) or Grade 10 (*n* = 87, 22%), of White ethnicity (*n* = 292, 82 %), and in regards to their income, reported their family to be about the same in richness (*n* = 256, 65%) in comparison to other families. The minority of adolescents in the sample were either returning to high school (*n* = 3, .8%) or entering their first year of their post-secondary education (*n* = 4, 1%), were of Black (*n* = 4, 1%) or Native Canadian (*n* = 2, .6%) ethnicities, and in regards to their income, reported their family to be a lot less rich (*n* = 8, 2%) or a lot more rich (*n* = 3, .8%) than other families. A more comprehensive list of participant demographics can be seen in Table 1.

Table 1

Frequencies for Demographic Variables

	Count	Percent (%)
Sex	(395)	
Boys	164	41.6
Girls	230	58.4
Age (M_{age} = 14.64, *SD* = 1.52)	(395)	
12	19	4.8
13	91	23.0
14	85	21.5
15	84	21.3
16	62	15.7
17	41	10.4
18	13	3.3
Age Split	(395)	
12-14 years old	195	49.4
15-18 years old	200	50.6
Grade	(393)	
7	32	8.2
8	83	21.1
9	88	22.4
10	87	22.1
11	45	11.5
12	51	13.0
Returning to high school	3	.8
First year post-secondary	4	1.0
Ethnicity	(358)	
White	292	81.6
Asian	24	6.7
Black	4	1.1
Native Canadian	2	.6
Other	19	5.3
Mixed	17	4.7
Family Socioeconomic Status	(394)	
A lot less rich	8	2.0
Less rich	40	10.2
About the same	256	65.0
More rich	87	22.1
A lot more rich	3	.8

Measures

Demographic Questionnaire. Participants were asked basic demographic questions (Appendix A) regarding their age, grade, ethnic or racial background, and family socioeconomic status.

HEXACO Personality Inventory-Revised. The HEXACO Personality Inventory-Revised (HEXACO PI-R; Appendix B) is a 60-item self-report personality measure developed by Lee and Ashton (2004). This six-factor personality model includes six broad factor subscales that have 10 items each including Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience. Reliability coefficients ranged from poor to acceptable (α = .67 to α = .75). Sample items from the subscales include "Having a lot of money is not especially important for me" for Honesty-Humility, "I sometimes can't help worrying about little things" for Emotionality, "I prefer jobs that involve active social interaction to those that involve working alone" for Extraversion, "I rarely hold a grudge, even against people who have badly wronged me" for Agreeableness, "I always try to be accurate in my work, even at the expense of time" for Conscientiousness, and "I would be quite bored by a visit to an art gallery" for Openness to Experience. The items on this scale range from (1 = *Strongly Disagree* to 5 = *Strongly Agree*).

Antisocial Process Screening Device-Youth Version. The Antisocial Process Screening Device-Youth Version (APSD-YV; Appendix C) is a 20-item self-report measure developed by Frick and Hare (2001) that contains three subscales including Callousness-Unemotional, Narcissism, and Impulsivity. Reliability coefficients ranged from poor to acceptable (α = .57 to α = .70). Sample for Callous-Unemotional are "You

are good at keeping your promises" and "You keep the same friends." Item 19 was removed from the calculation of the Callous-Unemotional subscale due to poor internal consistency that reduced the scales reliability from $\alpha = .60$ to $\alpha = .54$ when included. Sample items from the Narcissism subscale include, "You tease or make fun of other people" and "You use or "con" other people to get what you want." For Impulsivity, sample items are "You act without thinking of the consequences" and "You do risky or dangerous things." The items on this scale range from (0 = *Not at All True* to 2 = *Definitely True*).

Classroom Incivility Scale. The Classroom Incivility measure (Appendix D) developed by Farrell and colleagues (2015) contains 10-items and two subscales. However, only the composite measure including both subscales was used in the current study, which demonstrated high reliability ($\alpha = .82$). Adolescents choose the answer that best described their belief about a situation such as, "Making fun of a classmate who answered a question wrong" for Intentional Incivility, and "Reading, going online, or playing a game during a lesson" for Unintentional Incivility. The items on this scale range from (1= *Definitely Wrong* to 5 = *Definitely OK*).

Jessor's Attitudinal Intolerance of Deviance Scale. The Jessor's Attitudinal Intolerance of Deviance Scale (Appendix E) was developed by Jessor and Jessor (1977). This 11-item self-report measure looks at how wrong adolescents think it is to do the listed item behaviours. The reliability of this measure was high ($\alpha = .88$). Sample items from the scale include, "To cheat on a test", and "To skip school without a good excuse." The items on this scale range from (1 = *Very Wrong* to 4 = *Not at All Wrong*).

Reactive and Proactive Aggression Questionnaire. The Reactive and Proactive Aggression Questionnaire (Appendix F) is a 6-item self-report measure of aggression developed by Dodge and Coie (1987) that contains two subscales, Reactive Aggression and Proactive Aggression. The composite aggression variable, comprised of all 6-items, was highly reliable. Reliability coefficients ranged from poor to acceptable (α = .65 to α = .89). Sample items from the subscales include "When I have been teased or threatened I get angry easily and strike back" for Reactive Aggression, and "I get others to gang up on a peer I don't like" for Proactive Aggression. The items on this scale range from (1 = *Never* to 5 = *Almost Always*).

School Bullying Questionnaire. The Bullying Questionnaire (Appendix G) is a 14-item self-report measure of bullying and victimization developed by Volk and Lagzdins (2009) with School Victimization and School Bullying Perpetration. Only the 7-item School Bullying Perpetration (α = .80) subscale was used in the current study, which demonstrated high reliability. Sample items from the subscale include, "In school, how often have you hit, slapped, or pushed someone much weaker or less popular last term?" and "In school, how often have you threatened, yelled at, or verbally insulted someone?" The items on this scale range from (1 = *That Hasn't Happened* to 5 = *Several Times a Week*).

Self-Report Delinquency Questionnaire. The Self-Report Delinquency Questionnaire (SRDQ; Appendix H) is a 27-item revised self-report measure developed by LeBlanc and Frechette (1989) has four subscales (i.e., Theft, Vandalism, Violence, and Substance Use) that assess overt and covert delinquent behaviour that has occurred over the past 12 months. However, only the composite version of Delinquency

encompassing all 27-items was used in the current study, which demonstrated very high reliability (α = .94). Sample items from the subscales include “Taken and kept any school property worth $10 or more?” and “Purposely break or destroy something that didn't belong to you?” The items on this scale range from (1 = *Never* to 4 = *Often*).

Descriptives

Table 2

Means, Standard Deviations, Skewness, Kurtosis, and Internal Consistencies (N = 396)

	M (*SD*)	Skewness	Kurtosis	α (n of items)
HEXACO PI-R				
Honesty-Humility	3.44 (.57)	.35	-.20	.67 (10)
Emotionality	3.23 (.60)	-.07	.28	.75 (10)
Extraversion	3.33 (.63)	-.26	.25	.80 (10)
Agreeableness	3.24 (.53)	.06	.19	.68 (10)
Conscientiousness	3.52 (.57)	-.06	-.15	.75 (10)
Openness	3.06 (.60)	.08	.24	.71 (10)
APSD-YV				.76 (19)
*Callous-Unemotional	.44 (.38)	1.02	.85	.64 (5)
Narcissism	.43 (.34)	.73	-.16	.70 (7)
Impulsivity	.74 (.38)	.12	-.37	.57 (5)
Incivility	1.77 (.59)	1.08	.85	.82 (10)
Deviant Attitudes	1.51 (.50)	1.01	.45	.88 (11)
Aggression	1.47 (.56)	1.43	1.29	.84 (6)
Bullying	1.13 (.24)	2.34	5.24	.80 (7)
Delinquency	1.17 (.27)	2.45	5.84	.94 (27)

Note. α = Cronbach's alpha.
* = Post removal of Item 19, as item inclusion lowered subscale reliability to α = .50.

Procedure

Following the approval of Brock University Research Ethics Board, research assistants contacted coaches and group leaders from extracurricular clubs, sports teams and youth groups in Southern Ontario. When coaches and group leaders were contacted via phone or email, research assistants shared key information about the current study and determined the team or organizations' willingness to participate in the study. When research assistants corresponded with the group leaders a time, location, and date was arranged to share the study with the organization as a group and to answer questions the adolescents or coaches had about the survey. Once a group leader indicated their group's interest, the group leader was able to sign a letter of invitation, which included a group consent form (Appendix O) that was returned to the research assistant. The recruitment of adolescent participants ranged from the months of April 2016 to August 2016.

When meeting with the organizations or teams, the research assistants distributed envelops with unique identification numbers that contained a parental consent (Appendix P) and an adolescent assent form (Appendix Q), information about the study (e.g., voluntary participation and confidentiality), and a link to the online Qualtrics survey, which took roughly one hour to complete. At the end of the survey, participants read a debriefing form that contained the researcher's contact information in case they had any further questions. Approximately one to two weeks after distributing the envelopes to the adolescents, research assistants returned to the organizations to provide $15 to the adolescents who completed the survey, as well as to obtain the adolescents' signatures (Appendix R) that confirmed that they had received the $15 monetary compensation. Participant responses are being stored for 5 years as per institution policy.

Results

Preliminary Analyses

Univariate Assumptions. The independent and dependent variables in the current study were each screened for univariate assumptions including normality, outliers, and missing values. With the exception of three variables (i.e., Bullying, Delinquency, and Proactive Aggression), all of the independent and dependent variables met the assumption of normality. The variables had histograms that resembled normal distributions, as well as skewness and kurtosis values that were within |3|. As lower frequency intentional antisocial behaviours, the histograms of the Bullying (*skewness* = 2.34, *kurtosis* = 5.24), Delinquency (*skewness* = 2.45, *kurtosis* = 5.84), and the Proactive Aggression (*skewness* = 2.11, *kurtosis* = 3.29) variables were positively skewed with their kurtosis values surpassing the value of |3|.

All variables with extreme univariate outliers that were |3.3| standard deviations or greater were Winsorized (Tabachnick & Fiddel, 2013). Winsorizing included successively replacing the original value with a new value .01 units higher than the most extreme value on that variable not considered to be an outlier, and by maintaining the values' rank order (Tabachnick & Fiddel, 2013). Although Winsorizing extreme outliers on Bullying, Delinquency, and Proactive Aggression did not bring kurtosis values to within |3|, some univariate outliers can be expected with a large sample and Winsorizing helped to minimize their impact. Although the sample size in the current study was large (N = 396), a maximum likelihood parameter estimates with robust standard errors (MLR) estimator was used in both of the path analyses to account for the non-normal distributions of Bullying and Delinquency (*see* Hypothesis Two and Three).

For missing values, all of the variables included in the current study had less than 5% missing values with the exception of the Openness to Experience factor of the HEXACO-PI-R (23 cases, 5.8%). It is important to note that the Openness to Experience factor of the HEXACO-PI-R was included with the online Qualtrics survey shortly after the study began. Therefore, several adolescents had the opportunity to participate by the time Openness to Experience was included in the survey. Little's MCAR test was significant, $x^2(444) = 623.386$, $p < .001$, suggesting the missing values on Openness were not missing completely at random. However, it was already known beforehand that Openness to Experience would not be missing completely at random because the subscale was included shortly after the study began.

Multivariate Assumptions. There were two types of multivariate analyses in the current study, including a canonical correlation analysis and path analyses, which had overlapping assumptions that were important to examine prior to conducting the study. These overlapping multivariate assumptions for the CCA and path analyses concerned assumptions of linearity, homoscedasticity, multivariate outliers, and multicollinearity. As discussed in Appendix S, variables were checked for linearity and homoscedasticity through the visual inspection of scatterplot matrices and lines of best fit, as well as through plots of standardized residuals and predicted values. It was determined that each of the variables in these analyses met assumptions of linearity and homoscedasticity.

The simultaneous multiple regression conducted with the random dependent variable in Appendix S revealed one multivariate outlier that was identified through examination of Mahalanobis distance values. Although this multivariate outlier had a higher Mahalanobis distance value of 48.072, the Cook's distance of this outlier was

.137, which was below the suggested point of 1.00 that would have indicated that the outlier had an undue influence on the results (Tabachnick & Fiddel, 2013, p. 75). This multivariate outlier was kept in the analyses because its inclusion did not change the pattern of results in any of the analyses within current study. Lastly, multicollinearity was not present among the variables used in the current study (all $r < .70$; *see* Table 5). Appendix S provides a more detailed description of the multivariate assumptions, as well as of the steps that were taken to ensure that the aforementioned assumptions were met prior to the main analyses.

Bivariate Associations

Notable bivariate correlations will be highlighted with reference to relationships found among age, sex, the HEXACO-PI-R, the APSD-YV, and the antisocial outcomes in the current study (i.e., Classroom Incivility, Deviant Attitudes, Aggression, Bullying, and Delinquency), which can be found in Tables 3 and 4. Further correlations conducted that explored the validity of the APSD-YV can be found through tables 5 through 8.

Age and Sex. Some of the first bivariate relationships that were examined were those that included age. When age was examined where adolescents ranged from 12 to 18 years old, correlations revealed that being older was significantly related to having lower scores on Honesty-Humility, Extraversion, Agreeableness, and Conscientiousness factors, as well as higher scores on Openness, Narcissism and Impulsivity. Additionally, older adolescents were higher in overall self-reported psychopathy (*see* Table 3).

Relationships between sex and the variables in the current study were first examined in Table 3 before splitting the relationships by younger and older adolescents. Findings from Table 3 showed that boys were significantly lower on the Honesty-

Humility, Emotionality, Conscientiousness, and Openness to Experience factors, and higher on Callous-Unemotional ratings. Boys also had significantly higher overall self-reported psychopathy (*see* Table 3). When examining antisocial outcomes and their relationships with sex before splitting by age, being a boy was positively related to Deviant Attitudes, Aggression, and Delinquency, but not to Classroom Incivility or Bullying. The strongest overall relationship for boys was the relationship with Delinquency.

Table 3

Bivariate Correlations between all Variables

Variables	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1. Age	-.06	-.17**	-.05	-.12*	-.17**	-.12*	.12*	.18**	.00	.12*	.17**	.28**	.29**	.10	.11*	.29**
2. Sex[a]	-	.14**	.32**	-.06	.07	.21**	.12*	-.17**	-.23**	-.09	-.08	-.08	-.15**	-.15**	-.09	-.17**
3. Honesty-Humility		-	.15**	.18**	.36**	.38**	.10	-.53**	-.34**	-.46**	-.29**	-.43**	-.48**	-.34**	-.31**	-.34**
4. Emotionality			-	-.11*	-.06	.18**	.18**	-.19**	-.23**	-.07	-.07	-.20**	-.22**	-.02	-.00	-.11*
5. eXtraversion				-	.33**	.25**	.00	-.18**	-.19**	-.10	-.08	-.09	-.18**	-.12*	-.08	-.09
6. Agreeableness					-	.26**	.06	-.43**	-.19**	-.32**	-.36**	-.23**	-.21**	-.33**	-.20**	-.17**
7. Conscientiousness						-	.18**	-.51**	-.36**	-.27**	-.47**	-.36**	-.36**	-.35**	-.22**	-.31**
8. Openness							-	-.12*	-.14**	-.07	-.13*	-.06	-.04	-.12*	-.02	.00
9. Psychopathy								-	.60**	.83**	.68**	.49**	.51**	.52**	.43**	.48**
10. Callous-Unemotional									-	.30**	.07	.35**	.37**	.34**	.26**	.33**
11. Narcissism										-	.41**	.34**	.35**	.44**	.42**	.35**
12. Impulsivity											-	.28**	.30**	.28**	.23**	.26**
13. Classroom Incivility												-	.60**	.38**	.26**	.47**
14. Deviant Attitudes													-	.47**	.34**	.64**
15. Aggression														-	.46**	.50**
16. Bullying															-	.52**
17. Delinquency																-

Note. $N = 396$. For correlations separated by age see following tables. a. Sex was coded with 0 = Boy, 1 = Girl.
*$p < .05$, **$p < .01$.

Table 4

Bivariate Correlations between the HEXACO-PI-R and the APSD-YV with Antisocial Outcomes Separated by Age

Variables	Sex[a]	H	E	X	A	C	O	CU	Nar	Imp
Younger Adolescents										
Classroom Incivility	-.13	-.45**	-.23**	-.13	-.20**	-.39**	-.07	.39**	.35**	.24**
Deviant Attitudes	-.13	-.38**	-.23**	-.24**	-.18*	-.37**	.01	.32**	.24**	.29**
Aggression	-.14	-.28**	-.02	-.14*	-.40**	-.37**	-.14	.29**	.39**	.37**
Bullying	-.18*	-.27**	-.01	-.16*	-.28**	-.24**	-.02	.29**	.36*	.22**
Delinquency	-.21**	-.28**	-.12	-.23**	-.29**	-.32**	-.04	.38**	.36**	.26**
Older Adolescents										
Classroom Incivility	.01	-.36**	-.13	.00	-.20**	-.30**	-.08	.30**	.30**	.26**
Deviant Attitudes	-.10	-.53**	-.17*	-.09	-.18**	-.32**	-.10	.41**	.41**	.26**
Aggression	-.14*	-.37**	-.01	-.08	-.25**	-.32**	-.11	.37**	.47**	.20**
Bullying	-.01	-.32**	.02	-.00	-.12	-.19**	-.03	.23**	.47**	.21**
Delinquency	-.10	-.34**	-.09	.03	-.06	-.27**	.01	.31**	.34**	.22**

Note. $N = 395$. H = Honesty-Humility, E = Emotionality, X = Extraversion, A = Agreeableness, C = Conscientiousness, O = Openness to Experience, CU = Callous-Unemotional, Nar = Narcissism, Imp = Impulsivity. Younger Adolescents = 12-14 years old ($n = 195$); Older Adolescents = 15-18 years old ($n = 200$). a. Sex was coded with 0 = Boy, 1 = Girl.
*$p < .05$, **$p < .01$.

Broad Factors and Psychopathy. Before continuing with the main analyses, and in particular, the multivariate canonical correlation analysis (CCA) in Hypothesis One, it was important to generate a better understanding of the bivariate relationships between the six factors of the HEXACO-PI-R and the three subscales of the APSD-YV. As a whole, with adult samples, psychopathy has been typically associated with the Antagonism traits of the HEXACO-PI-R—lower Honesty-Humility, Emotionality, Agreeableness—as well as the engagement and endeavor factor known as lower Conscientiousness. Although overall psychopathy was negatively related to all six of the HEXACO factors (*see* Table 3), the largest effects were found with lower Honesty-Humility, Agreeableness, and Conscientiousness.

Some of the relationships, or lack of relationships, with the HEXACO factors and the psychopathy APSD-YV subscales sparked a few questions related to the validity of the APSD-YV Narcissism subscale. Additionally, some of those relationships between the psychopathy subscales and the HEXACO factors were not as strong or with the factors that were anticipated. For example, the Callous-Unemotional subscale was expected to have the strongest correlation with lower Emotionality, as callousness involves a disregard for others and is often considered as being the hallmark of psychopathy (Fanti & Georgiou, 2009; Hare, 1991). Although lower Emotionality was in fact significantly related to the Callous-Unemotional subscale, larger effects were seen with lower Honesty-Humility and Conscientiousness. Second, Narcissism was significantly related to lower Honesty-Humility, but not positively or significantly related to Extraversion. Third, the Impulsivity subscale of the APSD-YV did have relationships that were expected, such as the relationship between Impulsivity with lower

Conscientiousness and Agreeableness. The implications of these findings will be explored throughout the following correlational analyses and subsequent discussion.

First, the composite Callous-Unemotional subscale and each of the 6 Callous-Unemotional items—including Item 19, which was not part of the analyses of the current study due to reliability—were tested with the five variables I expected them to demonstrate concurrent validity with (*see* Table 5). Although the composite Callous-Unemotional subscale was more strongly associated with lower Honesty-Humility than lower Emotionality, the composite Callous-Unemotional subscale and its items were generally in the directions that were expected, including with lower Agreeableness, higher Proactive Aggression, and less Close Friendships, although there were variations at the item level. Again, Item 19 "You hide your feelings or emotions from others" was not included in any of the main analyses and was not significantly related to any of those variables (*see* Table 5). The strongest Callous-Unemotional item with lower Emotionality was Item 18R "You are concerned about the feelings of others". Of all the Callous-Unemotional items, Item 18R demonstrated the largest relationship with lower Honesty Humility. The Callous-Unemotional subscale as a whole had the largest relationship with Proactive Aggression.

Second, the composite Narcissism subscale and each of the 7 Narcissism items were tested with the five variables I expected it to demonstrate concurrent validity with (*see* Table 6). As mentioned, although Narcissism related strongly to lower Honesty-Humility, Narcissism was not at all related to greater Extraversion. Further investigation showed that Narcissism as a whole was also not related to Peer Valued Characteristics, Social and Athletic Competence, or Physical Appearance as would be expected of an

individual who had an inflated sense of self-worth. Interestingly, of the 7 items that had the greatest face validity for resembling narcissistic traits—Item 8 "You brag a lot about your accomplishments, and positions", as well as Item 16 "You think you are better or more important than other people"—those two items were only significantly associated with Peer Valued Characteristics for Item 16, and for Item 8, and Athletic competence for Item 8. Other items that were more likely to be resembling constructs other than Narcissism, but that were included in the calculation of the Narcissism subscale, such as Item 5 "Your emotions are shallow and fake" and Item 15 "You get angry when corrected or punished," were significantly correlated but in the opposite direction (i.e., lower Extraversion, lower Social and Athletic Competence) than would be expected of someone who had higher narcissistic traits.

It seemed that the Narcissism subscale might also be channeling traits or behaviours that would relate more to being deceitful, manipulative, socially controlling, and having a grandiose sense of self-worth. For this reason, a second correlation analysis with the Narcissism subscale and items was conducted with five variables that reflected those traits and behaviours (*see* Table 7). In this correlation table, the composite Narcissism subscale and its items had small to moderate effect sizes that were significantly associated with lower Honesty-Humility, as well as with greater Proactive Aggression, Interpersonal Influence, Item 6 of the APSD-YV that was not included in any subscales "You lie easily and skillfully", and Bullying. The single bivariate relationship that was not significant was Item 5 "Your emotions are shallow and fake" with Interpersonal Influence (*see* Table 7). The Narcissism Item with the strongest relationships with lower Honesty-Humility was Item 14 "You act charming and nice to

get the things you want", followed by Item 14 with Interpersonal Influence.

Lastly, as expected, Impulsivity correlated most with lower Conscientiousness. However, bivariate correlations with Impulsivity and five other variables commonly associated with Impulsivity can be seen in Table 8. From this table, it can be seen that lower Conscientiousness was significantly related to each of the Impulsivity items, particularly Item 4 "You act without thinking of the consequences", and Item 17 "You do not plan ahead or you leave things until the last minute".

Table 5

Bivariate Correlations between Callous-Unemotional Items of the APSD-YV and Variables for Convergent Validity

	Emotionality	Honesty-Humility	Agreeableness	Proactive Aggression	Close Friendship
Callous-Unemotional	-.23**	-.34**	-.19**	.41**	-.29**
3R. You care about how well you do at school/work.	-.18**	-.24**	-.13*	.39**	-.23**
7R. You are good at keeping your promises.	-.01	-.19**	-.16**	.28**	-.19**
12R. You feel bad or guilty when you do something wrong.	-.21**	-.22**	-.08	.24**	-.14**
18R. You are concerned about the feelings of others.	-.29**	-.33**	-.24**	.28**	-.18**
19. You hide your feelings or emotions from others.	.05	-.03	-.12*	-.04	-.09
20R. You keep the same friends.	-.08	-.10	-.03	.16**	-.18**

Note. $N = 396$. Item 19 not included in analyses within current study due to poor internal consistency.
*$p < .05$, **$p < .01$.

Table 6

Bivariate Correlations between Narcissism Items of the APSD-YV and Variables for Convergent Validity

	eXtraversion	Peer Valued Characteristics	Social Competence	Athletic Competence	Physical Appearance
Narcissism	-.10	.08	-.03	-.02	-.00
5. Your emotions are shallow and fake.	-.33**	-.18**	-.20**	-.12**	-.17**
8. You brag a lot about your accomplishments, and possessions.	.10	.17**	.08	.11*	.02
10. You use or "con other people to get what you want.	-.07	.07	.01	-.09	.03
11. You tease or make fun of other people.	-.10	-.00	-.04	-.02	.04
14. You act charming and nice to get things you want.	.10	.20**	.11*	.07	-.01
15. You get angry when corrected or punished.	-.14**	-.04	-.13**	-.09	-.04
16. You think you are better or more important than other people.	-.02	.11*	.00	.02	.12*

Note. $N = 396$.
*$p < .05$, **$p < .01$.

Table 7

Bivariate Correlations between Narcissism Items of the APSD-YV and Variables Related to Manipulating Others

	Honesty-Humility	Proactive Aggression	Interpersonal Influence	6. You lie easily and skillfully (APSD-YV).	Bullying
Narcissism	-.46**	.41**	.39**	.38**	.42**
5. Your emotions are shallow and fake.	-.23**	.20**	.08	.27**	.22**
8. You brag a lot about your accomplishments, and possessions.	-.25**	.15**	.31**	.19**	.19**
10. You use or "con other people to get what you want.	-.29**	.39**	.24**	.23**	.31**
11. You tease or make fun of other people.	-.25**	.36**	.21**	.25**	.39**
14. You act charming and nice to get things you want.	-.39**	.19**	.37**	.29**	.28**
15. You get angry when corrected or punished.	-.23**	.18**	.13**	.18**	.19**
16. You think you are better or more important than other people.	-.29**	.33**	.27**	.17**	.23**

Note. $N = 396$.
*$p < .05$, **$p < .01$.

Table 8

Bivariate Correlations between Impulsivity Items of the APSD-YV and Variables for Convergent Validity

	Conscien-tiousness	Reactive Aggression	Student Discipline	School Conscien-tiousness	Behavioural Problems
Impulsivity	-.47**	.33**	-.12*	-.09	.33**
1. You blame others for your mistakes.	-.21**	.31**	-.02	.06	.16**
4. You act without thinking of the consequences.	-.35**	.28**	-.13*	-.07	.27**
9. You get bored easily.	-.25**	.09	-.08	-.06	.13*
13. You do risky or dangerous things.	-.25**	.24**	-.17**	-.09	.27**
17. You do not plan ahead or you leave things until the "last minute."	-.36**	.12*	.01	-.10*	.14**

Note. $N = 396$.
*$p < .05$, **$p < .01$

Hypothesis Testing

Hypothesis One: Canonical Correlation Analysis. My first research question centered on whether the HEXACO-PI-R would account for variance in the APSD-YV, as well as on how the two measures would overlap if they were significantly related. This question was important for me to explore prior to the following analyses, because it allowed me to better understand the similarities between these measures, along with their overall compatibility. I hypothesized that the HEXACO-PI-R would account for a significant amount of the variance in the APSD-YV, as well as that lower ratings of Honesty-Humility, Emotionality, Agreeableness, and Conscientiousness would be associated with higher ratings on the Callous-Unemotional, Narcissism, and Impulsivity subscales. To test this hypothesis and the relationships between the HEXACO-PI-R and the APSD-YV, I used a canonical correlation analysis (CCA) in SPSS version 24, which has its foundations in the Pearson *r* correlation (Sherry & Henson, 2005). As a multivariate technique, the CCA allows researchers to examine the relationships between two variable sets by combining components of multiple regression and factor analysis, as well as by examining the correlation between synthetic criterion and predictor variables (Sherry & Henson, 2005).

The first part of my hypothesis was supported, as findings from the CCA revealed that the two measures of personality ratings were significantly related and that the HEXACO model accounted for a significant amount of shared variance in the psychopathy measure, $F(18, 956.49) = 18.345$, $p < .001$, Wilk's $\lambda = .432$. Wilk's λ represents how much variance is unexplained by the model. Thus, it can be determined that 57% of the shared variance (i.e., $1 - \lambda$) between the psychopathy variables was

accounted for by the HEXACO model. The CCA yielded a total of three canonical correlations (.694, .335, and .247) that had squared canonical correlations of .482, .112, and .061 respectively. In addition to the full model, a dimension reduction analysis showed that each of the three functions explained a statistically significant amount of shared variance between the variable sets, including function two to three, Wilks λ = .834, $F(10, 678) = 6.458$, $p < .001$, and function three alone, Wilks λ = .939, $F(4, 340)$ = 5.456, $p < .001$. Given the amount of shared variance between the two variable sets, as noted by their squared canonical correlations (i.e., 48%, 11%, and 6%), the current study will only interpret the first two canonical functions, as the third canonical function explained less than 10% of the remaining shared variance (Sherry & Henson, 2005). Each of the standardized canonical coefficients (i.e., beta weights), structure coefficients (i.e., canonical loadings), and squared structure coefficients for these first two canonical functions, as well as the communality coefficients for the overall model, can be found in Table 10.

Within function one and the overall model, each of the factors of the HEXACO-PI-R and subscales of the APSD-YV met the |.30| criterion used for interpreting canonical loadings, as outlined by Sherry and Henson (2005), with the exception of the HEXACO factors Emotionality, Extraversion, and Openness to Experience. This finding lent partial support to my hypothesis, where I predicted that Emotionality would also make a primary contribution to the model. When examining the HEXACO factors in function one, it can be seen that the Conscientiousness factor made the primary contribution to function one with the largest standardized canonical coefficient, followed by Honesty-Humility, and Agreeableness. Each of these three HEXACO factors also

shared negative signs, indicating that the HEXACO factors were positively related to one another.

Of the APSD-YV predictor variables, Impulsivity made the primary contribution to function one, as indicated by the highest standardized canonical coefficient, followed by secondary contributions from Narcissism and Callous-Unemotional. Each the APSD-YV subscales were positively related to each other as well, as indicated by their shared positive signs. Given that all of the criterion variables (i.e., HEXACO-PI-R factors) shared a negative sign, and that all of the predictor variables (i.e., APSD-YV subscales) shared a positive sign in the first function, this showed that lower ratings on Honesty-Humility, Agreeableness, and Conscientiousness, were related to higher ratings of Callous-Unemotionality, Narcissism, and Impulsivity.

Because the second canonical function on its own only explained 11% of shared variance between variable sets, this second function is interpreted with caution (Sherry & Henson, 2005). Results from this second canonical function showed that of the HEXACO factors, Honesty-Humility made the primary contribution to the function, followed by a secondary contribution from Conscientiousness (*see* Table 9). Of the APSD-YV subscales, Narcissism made the primary contribution to the second canonical function followed by Impulsivity. In this second function, findings showed that Honesty-Humility and Impulsivity had negative signs, whereas Conscientiousness and Narcissism had positive signs. This indicates that with the remaining shared variance, higher Conscientiousness and Narcissism was related to lower Honesty-Humility and lower Impulsivity. The communality coefficients in the final column of Table 9, taking into account the findings from both of these first two canonical functions, showed that the

Narcissism, Honesty-Humility, Conscientiousness, Impulsivity, Agreeableness, and Callous-Unemotional subscales made the greatest contributions to this canonical model overall.

Table 9

Canonical Solution for the Association between Broad Personality (HEXACO-PI-R) and Psychopathy (APSD-YV) on Functions 1 and 2

	Function 1			*Function 2*			
Variable	β	r_s	r_s^2 (%)	β	r_s	r_s^2 (%)	h^2
Honesty-Humility	-.39	-.73	53.29	-.94	-.62	38.44	91.73
Emotionality	-.17	-.28	7.84	.08	.13	1.69	9.53
Extraversion	.07	-.24	5.76	.06	.07	.05	5.81
Agreeableness	-.39	-.63	39.69	-.00	-.12	1.44	41.13
Conscientiousness	-.54	-.80	64.00	.77	.48	23.04	87.04
Openness	-.07	-.25	6.25	.16	.21	4.41	10.66
R_c^2			48.00			11.00	
Callous-Unemotional	.52	.63	39.69	-.25	.02	.00	39.69
Narcissism	.30	.71	50.41	1.08	.67	44.89	95.30
Impulsivity	.61	.75	56.25	-.80	-.36	12.96	69.21

Note. $N = 347$; Structure coefficients (r_s) and Communality coefficients (h^2) greater than |.30| are underlined. β = standardized canonical function coefficient; r_s = structure coefficient; r_s^2 = squared structure coefficient; h^2 = communality coefficient; R_c^2 = squared canonical correlation.

Hypothesis Two: Path Analysis Model One. Past research has shown that psychopathic traits and behaviours have been linked to a variety of antisocial outcomes. However, for the second research question, I wanted to determine whether a broad personality measure like the HEXACO-PI-R might also be related to a range of less to more severe antisocial attitudes and behaviors within an adolescent sample. For this second question, I hypothesized that lower Honesty-Humility in particular, as well as lower Emotionality, Agreeableness, and Conscientiousness would be associated with each of the antisocial outcomes in the current study, due in part to relationships found in the literature between the Big Five/Five-Factor Model of personality with antisocial behaviour (Jones et al., 2011). To test this hypothesis, I conducted a path analysis with Mplus version 7.4 (Muthén & Muthén, 1998-2012). Results for Model One can be found in Table 11.

As can be seen in the conceptual path model in Figure 1, Age and Sex were included as covariates due to their known associations with antisociality, along with each of the HEXACO factors (i.e., Honesty-Humility, Emotionality, Extraversion, Agreeableness, and Openness), which were all exogenous variables. The antisocial outcomes included as endogenous variables were Classroom Incivility, Deviant Attitudes, Aggression, Bullying, and Delinquency. The path model was a recursive model, and the number of parameters estimated were equal to the number of observations. Therefore, model fit indices were not meaningful and only the parameter estimates of the model were explored. Given non-normality in the Bullying and Delinquency variables, the model was estimated with maximum likelihood parameter

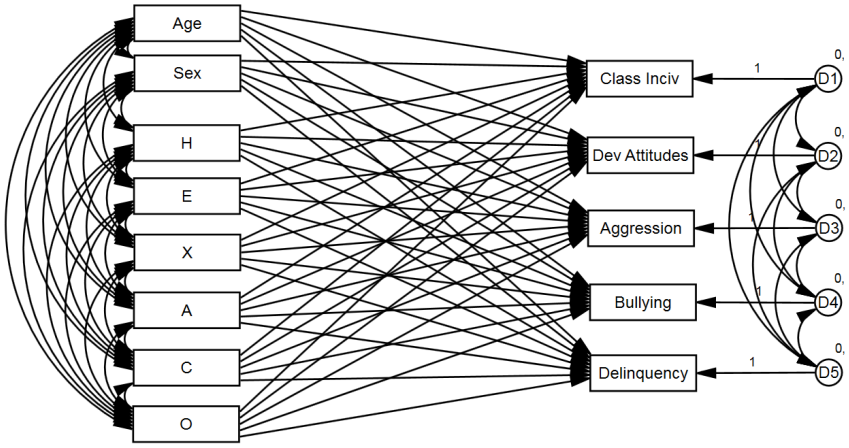

Figure 1. Conceptual Path Model One for the Associations between Age, Sex, and the HEXACO-PI-R with Antisocial Outcomes

estimates with robust standard errors (MLR). Importantly, the MLR estimator is robust to non-normality within continuous endogenous variables.

My second hypothesis was partially supported, as the HEXACO-PI-R accounted for a statistically significant amount of variance within each of the antisocial outcomes including Classroom Incivility (R^2 = .28, p < .001), Deviant Attitudes (R^2 = .33, p < .001), Aggression (R^2 = .22, p < .001), Bullying (R^2 = .12, p < .001), and Delinquency (R^2 = .21, p < .001). Although lower Honesty-Humility was associated with each of the outcomes as predicted, as well as Conscientiousness, the HEXACO factors Emotionality and Agreeableness varied in their associations with the antisocial outcomes. The first antisocial behaviour in the conceptual path model (*see* Figure 1) is Classroom Incivility. Classroom Incivility, measuring lower intensity antisociality like packing up books early or making fun of a classmate who answered a question wrong, was significantly associated with lower Honesty Humility, Conscientiousness, and Emotionality, as well as with being older in age (*see* Table 10).

The second antisocial outcome in the conceptual path model is Deviant Attitudes, which measures how wrong adolescents think it is to engage in deviant behaviours, like giving a teacher a fake excuse for being absent. Like the lower intensity antisocial behaviour Classroom Incivility, Deviant Attitudes was significantly associated with lower Honesty-Humility, Conscientiousness, and Emotionality, as well as with being older in age. The third antisocial behaviour Aggression encompasses both reactive and proactive aggressive behaviours. Significant associations were found between Aggression and lower Conscientiousness, Agreeableness, and Honesty-Humility. The fourth antisocial outcome that can be seen in Figure 1 is Bullying behaviour, which includes different types of bullying such as cyber and physical bullying. Bullying was only significantly associated with lower Honesty-Humility and Conscientiousness. Similarly, the final antisocial outcome Delinquency or criminal behaviour, which includes behaviours like theft and violence, was significantly associated with lower Honesty-Humility and Conscientiousness, but was also related to being older in age (*see* Table 10).

Table 10

Path Analysis Results for Associations Between the HEXACO-PI-R and Antisocial Outcomes

	Classroom Incivility			Deviant Attitudes			Aggression			Bullying			Delinquency		
Variable	*b (SE)*	*CI*	*β (SE)*	*b (SE)*	*CI*	*β (SE)*	*b (SE)*	*CI*	*β (SE)*	*b (SE)*	*CI*	*β (SE)*	*b (SE)*	*CI*	*β (SE)*
Age	.08** (.02)	[.05, .11]	.20 (.04)	.06** (.01)	[.04, .09]	.19 (.04)	.01 (.02)	[-.02, .04]	.03 (.04)	.01 (.01)	[-.01, .02]	.04 (.05)	.04** (.01)	[.03, .06]	.23 (.04)
Sex	.08 (.06)	[-.04, .18]	.06 (.05)	-.02 (.05)	[-.11, .08]	-.02 (.05)	-.09 (.07)	[-.22, .04]	-.08 (.06)	-.02 (.03)	[-.07, .03]	-.04 (.05)	-.04 (.03)	[-.10, .01]	-.08 (.05)
Honesty-Humility	-.30** (.05)	[-.40, -.21]	-.29 (.04)	-.31** (.04)	[-.39, -.24]	-.35 (.04)	-.17** (.05)	[-.28, -.07]	-.17 (.05)	-.10** (.02)	[-.14, -.06]	-.23 (.05)	-.10** (.02)	[-.14, -.06]	-.21 (.04)
Emotionality	-.12* (.05)	[-.20, -.03]	-.12 (.04)	-.12** (.03)	[-.18, -.05]	-.14 (.04)	.07 (.05)	[-.03, .17]	.08 (.06)	.02 (.02)	[-.02, .07]	.07 (.06)	-.01 (.02)	[-.05, .03]	-.03 (.05)
eXtraversion	.05 (.05)	[-.05, .15]	.05 (.05)	-.05 (.04)	[-.13, .02]	-.07 (.05)	.04 (.04)	[-.04, .12]	.04 (.05)	.01 (.02)	[-.03, .05]	.03 (.06)	.01 (.02)	[-.03, .04]	.01 (.04)
Agreeableness	-.07 (.06)	[-.18, .05]	-.06 (.05)	-.00 (.04)	[-.08, .09]	.00 (.05)	-.22** (.06)	[-.33, .11]	-.21 (.05)	-.04 (.02)	[-.08, .01]	-.08 (.05)	-.01 (.02)	[-.05, .04]	-.01 (.05)
Conscientiousness	-.23** (.06)	[-.34, -.12]	-.22 (.05)	-.15** (.04)	[-.23, -.06]	-.17 (.05)	-.22** (.05)	[-.32, -.12]	-.22 (.05)	-.05* (.02)	[-.09. -.01]	-.11 (.06)	-.09** (.02)	[-.13, -.05]	-.19 (.04)
Openness	-.01 (.04)	[-.09, .08]	-.01 (.04)	.03 (.03)	[-.04, .09]	.03 (.04)	-.05 (.04)	[-.12, .03]	-.06 (.04)	.00 (.02)	[-.04, .04]	.01 (.05)	.02 (.02)	[-.01, .05]	.04 (.04)

Note. *p <.05, **p <.01.

Hypothesis Three: Path Analysis Model Two. For my third research question, I hypothesized that Honesty-Humility, Emotionality, Agreeableness, and Conscientiousness, as well as the psychopathy subscales (i.e., Callous-Unemotional, Narcissism, and Impulsivity), would be associated with each of the antisocial outcomes in the current study, but that Honesty-Humility and Callous-Unemotionality might have the strongest associations. A second part of this hypothesis was that as a broad measure, the HEXACO-PI-R would be more strongly associated with the broad antisocial outcome Deviant Attitudes, but that the APSD-YV would have stronger associations with all of the specific antisocial behaviours. To test this hypothesis, I conducted a second path analysis with Mplus version 7.4 (Muthén & Muthén, 1998-2012). Results for Model Two can be found in Table 11.

Like Model One, Age and Sex were included as covariates, along with each of the HEXACO factors (i.e., Honesty-Humility, Emotionality, Extraversion, Agreeableness, and Openness), which all were the exogenous variables, with the addition of the APSD-YV subscales (i.e., Callous-Unemotional, Narcissism, and Impulsivity) in Model Two (*see* Figure 2). The antisocial outcomes included as endogenous variables were the same as Model One with Classroom Incivility, Deviant Attitudes, Aggression, Bullying, and Delinquency. The path model was a recursive model, and the number of parameters estimated were equal to the number of observations. For this reason, the model fit indices were not interpreted as they were not meaningful and only the parameter estimates of the model were explored. Due to the non-normality in the Bullying and Delinquency variables, the model was estimated with maximum likelihood parameter estimates with robust standard errors (MLR), which is robust to non-normality within continuous

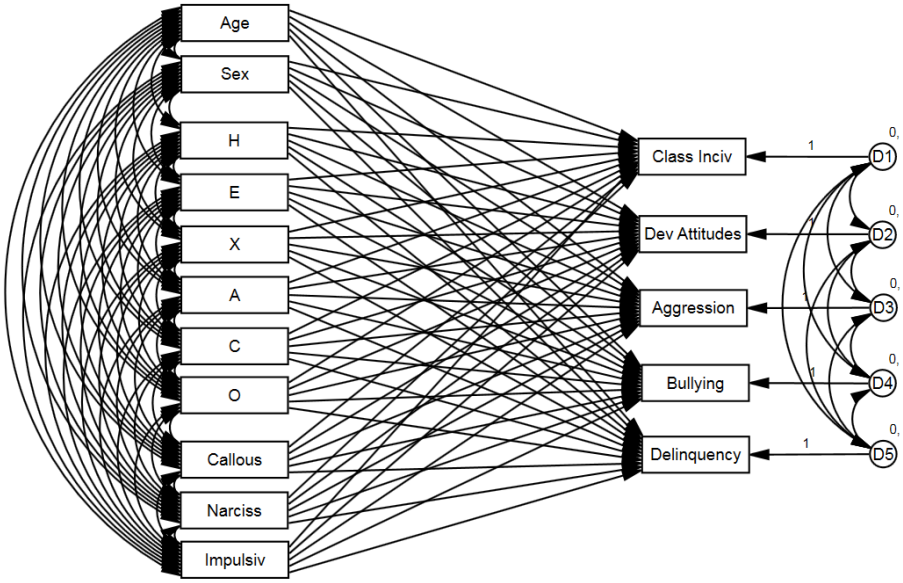

Figure 2. Conceptual Path Model Two for the Associations between Age, Sex, the HEXACO-PI-R, and the APSD-YV with Antisocial Outcomes

endogenous variables.

I found partial support for my predictions for the third hypothesis. First, the HEXACO-PI-R and APSD-YV accounted for a statistically significant amount of variance within each of the antisocial outcomes including Classroom Incivility (R^2 = .33, p < .001), Deviant Attitudes (R^2 = .37, p < .001), Aggression (R^2 = .31, p < .001), Bullying (R^2 = .22, p < .001), and Delinquency (R^2 = .29, p < .001). Although higher Callous-Unemotionality was associated with each of the antisocial outcomes as predicted, the HEXACO factors Honesty-Humility, Emotionality, Agreeableness and Conscientiousness, as well as the APSD-YV subscales Narcissism and Impulsivity, varied in their associations with the antisocial outcomes.

The second part of the third hypothesis was partially supported, as the HEXACO-PI-R had the strongest association with the broad outcome Deviant Attitudes. However,

it was also predicted that the APSD-YV, as a specific measure of psychopathy, would have stronger associations with each of the specific behavioural outcomes. Findings supported part of this hypothesis. The HEXACO-PI-R had a stronger association with the behaviour of Classroom Incivility than the APSD-YV, although this difference was very small (*see* Table 11). This first antisocial behaviour in the conceptual path model (*see* Figure 2), Classroom Incivility, was significantly associated with lower Honesty-Humility, higher Callous-Unemotionality, and lower Conscientiousness, as well as with being older in age.

The second outcome in Model Two, Deviant Attitudes, was significantly associated with lower Honesty-Humility, higher Callous-Unemotionality, higher Impulsivity, and lower Emotionality. The third antisocial behaviour Aggression was significantly associated with higher Narcissism, higher Callous-Unemotionality, lower Conscientiousness, and lower Agreeableness. Bullying was only associated with the APSD-YV subscales, including higher Narcissism and higher Callous-Unemotionality. Lastly, Delinquency was significantly associated with higher Callous-Unemotioanlity, Narcissism, and Impulsivity, lower Honesty-Humility, as well as with being older in age (*see* Table 11).

Table 11

Path Analysis Results for the Associations between the HEXACO-PI-R, APSD-YV, and Antisocial Outcomes

	Classroom Incivility			Deviant Attitudes			Aggression			Bullying			Delinquency		
Variable	*b (SE)*	*CI*	*β (SE)*	*b (SE)*	*CI*	*β (SE)*	*b (SE)*	*CI*	*β (SE)*	*b (SE)*	*CI*	*β (SE)*	*b (SE)*	*CI*	*β (SE)*
Age	.08** (.02)	[.05, .11]	.21 (.04)	.06** (.01)	[.04, .09]	.19 (.04)	.01 (.02)	[-.02, .04]	.03 (.04)	.01 (.01)	[-.01, .02]	.04 (.05)	.04** (.01)	[.03, .06]	.23 (.04)
Sex	.10 (.06)	[-.01, .21]	.08 (.05)	.00 (.05)	[-.09, .09]	.00 (.05)	-.06 (.07)	[-.19, .07]	-.06 (.06)	-.02 (.02)	[-.06, .03]	-.03 (.05)	-.03 (.03)	[-.08, .02]	-.06 (.05)
Honesty-Humility	-.22** (.05)	[-.31, -.12]	-.21 (.05)	-.25** (.04)	[-.33, -.17]	-.28 (.05)	-.04 (.05)	[-.15, .06]	-.04 (.05)	-.04 (.02)	[-.08, .01]	-.09 (.05)	-.05* (.02)	[-.09, -.01]	-.10 (.05)
Emotionality	-.09 (.05)	[-.17, .00]	-.09 (.05)	-.09** (.03)	[-.16, -.02]	-.11 (.04)	.10 (.05)	[-.00, .19]	.10 (.05)	.04 (.02)	[-.01, .08]	.09 (.05)	.01 (.02)	[-.04, .05]	.01 (.05)
eXtraversion	.06 (.05)	[-.03, .16]	.07 (.05)	-.05 (.04)	[-.12, .03]	-.06 (.05)	.04 (.04)	[-.03, .12]	.05 (.04)	.01 (.02)	[-.03, .05]	.03 (.05)	.01 (.02)	[-.02, .04]	.02 (.04)
Agreeableness	-.02 (.06)	[-.13, .09]	-.02 (.05)	.06 (.05)	[-.03, .15]	.06 (.05)	-.15** (.06)	[-.26, -.04]	-.14 (.06)	-.00 (.02)	[-.05, .04]	-.00 (.05)	.03 (.02)	[-.02, .08]	.06 (.05)
Conscientiousness	-.16** (.06)	[-.27, -.04]	-.15 (.06)	-.05 (.05)	[-.14, .04]	-.06 (.05)	-.14* (.06)	[-.26, -.03]	-.14 (.06)	-.02 (.03)	[-.07, .04]	-.04 (.06)	-.04 (.03)	[-.09, .01]	-.08 (.05)
Openness	.01 (.04)	[-.07, .09]	.01 (.04)	.04 (.03)	[-.03, .10]	.05 (.04)	-.05 (.04)	[-.12, .03]	-.05 (.04)	.01 (.02)	[-.03, .05]	.02 (.05)	.03 (.02)	[-.00, .06]	.06 (.03)
Callous-Unemotional	.31** (.10)	[.12, .49]	.20 (.06)	.28** (.08)	[.12, .43]	.21 (.06)	.27** (.10)	[.08, .46]	.18 (.06)	.09* (.04)	[.00, .17]	.13 (.06)	.17** (.05)	[.07, .26]	.23 (.07)
Narcissism	.18 (.10)	[-.02, .38]	.10 (.06)	.11 (.08)	[-.05, .26]	.07 (.05)	.45** (.11)	[.24, .66]	.27 (.06)	.22** (.05)	[.12, .32]	.31 (.07)	.13* (.05)	[.02, .23]	.16 (.06)
Impulsivity	.09 (.09)	[-.08, .26]	.06 (.06)	.18* (.07)	[.04, .33]	.14 (.06)	.06 (.10)	[-.14, .24]	.04 (.07)	.03 (.04)	[-.04, .11]	.05 (.06)	.08* (.04)	[.00, .15]	.11 (.06)

Note. **p* <.05, ***p* <.01.

Discussion

The questions that guided my study were centered on the compatibility between a general measure of personality and a specific psychopathy measure, whether a broad measure of personality would be associated with antisocial outcomes, and whether a broad measure of personality would be more or less strongly associated with antisocial outcomes than a specific psychopathy measure. Findings from this study lent partial support to each of my three hypotheses. First, the Honesty-Humility, Agreeableness, and Conscientiousness factors of the HEXACO were negatively associated with each of the psychopathy subscales of the APSD-YV as expected, although the Emotionality factor of the HEXACO was not. Second, the HEXACO-PI-R was associated with a range of antisocial outcomes. Finally, although significant relationships varied, the HEXACO-PI-R had larger associations with the lowest intensity antisocial belief and attitude outcomes like Classroom Incivility and Deviant Attitudes, whereas the APSD-YV had stronger associations with the Aggression, Bullying, and Delinquency behavioural outcomes. Theoretical and practical considerations for studying adolescent antisociality with broad or specific types of personality measures will be discussed below.

The Compatibility between the HEXACO-PI-R and the APSD-YV

My first question explored whether the HEXACO-PI-R would account for variance and overlap significantly with the APSD-YV. As was hypothesized, the two sets of personality ratings, the HEXACO-PI-R and APSD-YV, were negatively associated with each other. The next part of the hypothesis regarding the overlap of the subscales was partially supported, in that lower ratings on Honesty-Humility, Agreeableness, and Conscientiousness were related to higher scores on each of the three psychopathy

subscales (i.e., Callous-Unemotional, Narcissism, and Impulsivity). However, it was also expected that Emotionality would significantly contribute to the overall canonical model. Thus, one of the surprising findings from the CCA was related to the Emotionality factor, as well as to the fact that the Callous-Unemotional subscale, of the three psychopathy subscales, made the smallest contribution to the canonical model. One canonical study conducted with a university sample and a different psychopathy measure found Emotionality to be a significant, if modest, factor for the overlap between the HEXACO-PI and psychopathy (Book et al., 2015).

Although there is less variability in traits such as Emotionality in adolescence, one reason it was surprising that Emotionality did not contribute to the canonical model is because several researchers have found that psychopathic individuals tend to have profound deficits in affective empathy, including in the breadth and depth of their emotions (Fanti et al., 2009; Hare, 1993). Callous-Unemotional traits tend to relate to individuals who are more cold in their interpersonal interactions, and who have a lack of empathy or guilt for the victims of their behaviours (Fanti et al., 2009). Psychopaths also tend to demonstrate lower levels of anxiety and fearfulness, which are facets measured by the Emotionality factor of the HEXACO-PI-R (Hare, 1993; Kotler & McMahon, 2005). It is possible that Emotionality may not have contributed to the CCA because the Callous-Unemotional subscale was not as strongly linked with lower Emotionality as it was with the other HEXACO factors, like Honesty-Humility and Conscientiousness. Additionally, the CCA analyzes whether there is a multivariate shared relationship between two different measures, and Emotionality was only significantly associated with the Callous-Unemotional subscale, whereas Honesty-Humility, Conscientiousness, and

Agreeableness were associated with each of the psychopathy subscales at the univariate level.

Although no relationships were found with Emotionality in the CCA, strong contributions to the canonical model came from Honesty-Humility and Narcissism, Conscientiousness and Impulsivity, as well as Agreeableness and Callous-Unemotionality. In general, it was expected that there would be a significant relationship between lower Honesty-Humility (e.g., feeling entitled to special privileges and important positions of status), and Narcissism, which measures an inflated sense of self-worth. However, as was mentioned, it was the lack of relationship between Extraversion and Narcissism sparked some further questions in my study. Of the Dark Triad, narcissism is often seen as having the greatest social core, as individuals who are high in narcissism tend to seek more friends for self-validation or reassurance, share more self-promoting content on Facebook®, and are overall, more interactive with others in person and online (Jonason & Schmitt, 2012).

However, as was discussed previously in the section on Broad Factors and Psychopathy bivariate correlations, the Narcissism subscale seemed to be composed of a few items that may not completely reflect narcissistic traits or tendencies like "Your emotions are shallow and fake". Although an individual who thinks highly of themselves may exhibit shallow affect and superficially flatter others, a narcissistic individual might actually be sincere or straightforward, even if they are considered less agreeable. Shallow affect and the presence of insincere emotions may theoretically fit better under the Callous-Unemotional subscale, but this item does help to explain Narcissism's relationship to lower Honesty-Humility. In fact, some items in the Narcissism subscale

that seemed like they would be more strongly reflected by variables like Honesty-Humility, interpersonal influence, and skillful lying than narcissism such as “You use or “con” other people to get what you want” and “You act charming and nice to get things you want”, were indeed significantly associated with the aforementioned variables in Table 7.

Next to Narcissism and Honesty-Humility, the greatest contributions to the canonical model came from Impulsivity and Conscientiousness (*see* Table 9). At the univariate level, Impulsivity and each of the items did in fact significantly associate with lower Conscientiousness. In the literature, higher Impulsivity and lower Conscientiousness have both been connected to antisocial behaviour, due in part to the increased tendency of impulsive individuals to respond to provoked attacks, risk-taking, and general reckless behaviours (Kerig & Stellwagen, 2010; Waller et al., 2017). Individuals with low Conscientiousness also tend to live an erratic and impulsive lifestyle (Lee & Ashton, 2012). Studies have found that children with impulsivity or lower behavioural inhibition, callous-unemotional traits, and conduct problems, show greater levels of thrill and adventure seeking, but are less sensitive to punishment cues (i.e., parental discipline, teacher reprimands) (Frick et al., 2000). Lastly, although the contribution of the Agreeableness factor to the CCA was the smallest of the HEXACO factors, its canonical loading suggests that it is an important factor in connecting the HEXACO-PI-R to a measure of psychopathy. Consistent with previous psychopathy studies, psychopathy was associated with lower Agreeableness or the tendency to be vindictive, disagreeable, argumentative, and judgemental (Book et al., 2015). However, lower Honesty-Humility and Conscientiousness in particular were not only associated

with higher psychopathy, but with greater antisociality.

HEXACO-PI-R Associations with Antisocial Outcomes

The findings from my second research question, which explored whether the HEXACO-PI-R would be associated with antisocial outcomes, showed that lower levels of Honesty-Humility and Conscientiousness were associated with each of the antisocial outcomes (i.e., Classroom Incivility, Deviant Attitudes, Aggression, Bullying, and Delinquency). There were also some significant associations with Emotionality, Agreeableness, and antisociality, but none from Extraversion or Openness. The Honesty-Humility factor of the HEXACO-PI-R contrasts traits related to being loyal, modest, and ethical, with being boastful, conceited, and deceitful (Lee & Ashton, 2012). Honesty-Humility may be an important personality trait for influencing whether individuals will engage in antisocial behaviour, as individuals with lower levels of this trait may feel entitled to special treatment or benefits, may be more insincere to gain favourable outcomes, and may exploit rather than to cooperate with others (Lee & Ashton, 2012).

First, with the exception of Aggression, which had a stronger association with Conscientiousness, the finding that lower Honesty-Humility had the strongest significant associations with each of the antisocial outcomes provides support for the HEXACO-PI-R as a tool for measuring antisocial behaviour. This study showed consistency with antisociality research with the Big Five, in that Agreeableness and Conscientiousness are often associated with a variety of antisocial outcomes, as they were in this study (Lynam et al., 2005). Of the six broad personality factors measured by the HEXACO-PI-R, Honesty-Humility had the strongest relationships with adolescent antisociality, followed by Conscientiousness.

Second, as was mentioned, Conscientiousness was associated with each of the antisocial outcomes in Model One. The Conscientiousness factor of the HEXACO-PI-R contrasts traits related to being perfectionistic, efficient, and organized, with being negligent, absent-minded, and reckless (Lee & Ashton, 2012). This finding is consistent with theory, as individuals who are lower in factors like Conscientiousness and Honesty-Humility, may only be concerned about themselves or their own personal gain, but may also be unwilling to put in honest hard work to obtain those goals. Lower conscientiousness tends to be associated with lower self-control, as well as a reduced ability to inhibit urges that relate to taking advantage of others or engaging in criminal behaviour (Lee & Ashton, 2012). On the other hand, individuals who have higher Conscientiousness but lower Honesty-Humility could be more instrumental, organized, and strategic when trying to achieve their goals (e.g., monetary resources, promotion) through antisocial means (e.g., manipulating, lying) than individuals with lower Conscientiousness (Lee & Ashton, 2012). However, being self-motivated and irresponsible, it seems that individuals with a combination of lower Conscientiousness and lower Honesty-Humility are not only more likely to engage in antisocial behaviour, but are also more likely to get caught doing so (Lee & Ashton, 2012). Others have also found that with the Big Five, lower Conscientiousness and Agreeableness have been strongly related to antisocial behaviour and aggression (Jones et al., 2011; Lynam et al., 2005).

Third, in Model One, lower Emotionality was associated with Classroom Incivility and Deviant Attitudes. The Emotionality factor of the HEXACO-PI-R contrasts traits related to being sentimental, vulnerable, and dependent, with being self-assured,

insensitive, and fearless (Lee & Ashton, 2012). Although lower Emotionality has been related to antisocial behaviour, partly due to lower fear of punishment and less care for the suffering of others, the findings from my study suggest that even though lower Emotionality may be associated with certain antisocial outcomes, those associations might not be as strong as with some of the other HEXACO personality factors. For example, lower Emotionality was associated with Delinquency—which includes theft, violence, vandalism, and substance use—in the bivariate correlations, yet in Model One, Emotionality was not associated with Delinquency. Delinquency had stronger bivariate correlations with Honesty-Humility, Conscientiousness, and Agreeableness, and was associated with Honesty-Humility and Conscientiousness in Model One. Additionally, the Emotionality factor did not load onto the canonical function and did not overlap with the APSD-YV psychopathy measure. Psychopathy—which was expected to overlap with Emotionality in the current study—has been linked to both early onset delinquent criminal behaviour (e.g., police contact, juvenile court referral) and general violent and non-violent forms of delinquency (Vaughn et al., 2008). However, the CCA showed that psychopathy had a stronger overlap with Honesty-Humility and Conscientiousness than with Emotionality.

Next to Conscientiousness, lower Agreeableness was associated with Aggression. Agreeableness contrasts traits that are related to being forgiving, tolerant, and patient, with being stubborn, ill-tempered, and blunt (Lee & Ashton, 2012). Research has shown that lower agreeableness is strongly related to both reactive and proactive aggression, as individuals with lower levels of this trait tend to not only be stubborn and reactive, but also tend to be more inclined to retaliate against others (Caldwell, 2011; Fanti &

Georgiou, 2009; Jones, Miler, Lynam, 2011; Lee & Ashton, 2012). Further, individuals with lower levels of Honesty-Humility and Agreeableness can be quick to believe that they are being exploited by others, can be chronically involved in arguments, and can be much less forgiving.

On the other hand, Extraversion and Openness were not associated with any antisocial outcomes in the path analysis as was predicted. The Extraversion factor of the HEXACO-PI-R contrasts traits related to being outgoing, sociable, and cheerful, with being passive, introverted, and withdrawn. The Openness factor of the HEXACO-PI-R contrasts being creative, unconventional, and deep, with being shallow, close-minded, and shallow. Though both Extraversion and Openness as traits can impact antisocial behaviour, they may not be as critical as the other HEXACO factors in terms of their associations with deviant attitudes and antisocial behaviours with adolescents. Extraversion or Openness also did not overlap with the psychopathy measure in the CCA. In sum, findings from Model One showed that lower ratings on the Honesty-Humility and Conscientiousness factors had the strongest and most consistent associations each of the antisocial outcomes among adolescents, followed by lower ratings on the Emotionality and Agreeableness factors.

HEXACO-PI-R and APSD-YV Associations with Antisocial Outcomes

In this section I will highlight the main findings from Model Two (i.e., where both the HEXACO-PI-R and the APSD-YV were included), and will then discuss some of the patterns I found in within Model Two in comparison to Model One (i.e., where only the HEXACO factors were included). In, Model Two, the HEXACO-PI-R had stronger associations with the lower intensity antisocial outcomes, including Classroom

Incivility and Deviant Attitudes, whereas the APSD-YV had stronger associations with the higher intensity antisocial behaviours of Aggression, Bullying, and Delinquency. Of all the subscales within the HEXACO-PI-R and the APSD-YV, Callous-Unemotionality was the only variable that was associated with each of the five antisocial outcomes, although it was predicted that lower Honesty-Humility and Conscientiousness would be as well. Even with the inclusion of the psychopathy measure, the Honesty-Humility, Emotionality, Agreeableness, and Conscientiousness factors had some associations with most of the antisocial outcomes.

Just as in Model One, Classroom Incivility was the first antisocial behaviour explored in Model Two (*see* Figure 2). In Model Two, lower Honesty had a stronger association with Classroom Incivility than Callous-Unemotionality, although their standardized Betas were within one unit of each other (*see* Table 11). Although this difference is minor, the idea that the HEXACO-PI-R is more strongly associated with Classroom Incivility than the APSD-YV is important, as most antisocial behaviours tend to begin during childhood or adolescence, and several early misconduct behaviours can be considered early warning signs of adolescent antisociality (Arbuckle & Cunningham, 2012; Gumpel, 2014). Classroom Incivility is composed of Intentional and Unintentional Incivility, the latter of which is likely related to lower Conscientiousness. Model Two showed that both lower Honesty-Humility and Conscientiousness were still associated with Classroom Incivility, even with the addition of the psychopathy measure.

The second antisocial outcome, Deviant Attitudes, had the strongest association with Honesty-Humility, a lower intensity but broad antisocial outcome. Deviant Attitudes was also associated with Callous-Unemotionality, Impulsivity, and

Emotionality. Adolescents' views and beliefs about deviance and delinquency can have an impact on whether they will engage in antisocial behaviour if they have the opportunity. For example, in a longitudinal study, Engels and colleagues (2004) found that tolerant attitudes toward delinquency predicted future delinquent acts for adolescents who had not yet engaged in criminal behaviour. Other researchers have found that adolescent boys who had tolerant attitudes toward theft and violence, for example, had greater deviant behaviour overall than adolescents who had actually committed theft or violence (Zhang et al., 1997). Researchers have also found that both institutionalized and non-institutionalized adolescents with delinquent behaviours tend to have more negative attitudes toward their parents, teachers, police, and the law (Levy, 2001).

Aggression, Bullying, and Delinquency had stronger associations with the APSD-YV, which contains behavioural items. In Model Two, Aggression was associated with Narcissism, Callous-Unemotionality, Conscientiousness, and Agreeableness. The Narcissism subscale was shown to be related to Proactive and general Aggression, as well as Bullying. However, the relationship between Aggression and Callous-Unemotionality is also important to highlight. After controlling for a history of violence, intelligence, and demographic covariates among children, callous-unemotional traits were associated with an increased endorsement of revenge, dominance, forced social respect from peers, and conflict avoidance (Pardini, 2011). Children higher in callous-unemotional traits tend to minimize the impact of their aggression, and are more open to acknowledging that the consequences of their behaviour does not worry them (Pardini & Byrd, 2012). Highly aggressive children often continue to be highly aggressive when becoming adults (Baughman et al., 2012).

The only antisocial outcome other than Aggression that was no longer associated with Honesty-Humility when the APSD-YV was included was Bullying. In Model Two, Bullying was associated with Narcissism and Callous-Unemotionality. Bivariate correlations showed that the Narcissism variable in the current study had strong associations with manipulative-type traits. Narcissism and Honesty-Humility also had a strong overlap, which might partially explain why Honesty-Humility no longer was associated Bullying with the inclusion of Narcissism. Bullying tends to be more stable in youth who score high in narcissism (Fanti & Kimonis, 2012). Higher levels of callous-unemotional traits have also been linked to higher levels of both direct and indirect bullying, above the association between bullying and conduct problems (Viding et al., 2009). Conscientiousness was no longer associated with Bullying when the psychopathy subscales were in the model. Notably, the Callous-Unemotional subscale contained an item that could have overlapped with lower Conscientiousness (i.e., Item 3R "You care about how well you do at school/work"). However, it is more likely that the strong associations between Narcissism, Callous-Unemotionality, and Bullying, left little variation for Honesty-Humility and Conscientiousness.

The final antisocial behaviour studied was Delinquency. Delinquency was associated with all of the psychopathy subscales, as well as with lower Honesty-Humility. Lower Conscientiousness was previously associated with Delinquency in Model One, but not in Model Two. Results from Model Two lend support to the idea that higher intensity antisocial outcomes may be better predicted by a psychopathy measure than a broad personality measure.

Although I was interested in how a broad personality measure and psychopathy

measure would compete when it came to their associations with a range of antisocial outcomes, I was also interested in what previous relationships (i.e., found in Model One) would change as a result of including both measures together (i.e., Model Two). For example, in Model One, lower Emotionality was associated with Classroom Incivility and Deviant Attitudes. In Model Two, when the Callous-Unemotional subscale was included, Emotionality was no longer associated with Classroom Incivility. Another change in Model Two was that the Honesty-Humility factor was no longer associated with Aggression or Bullying, when Narcissism and Callous-Unemotionality were included, which may be related to the strong overlap between Honesty-Humility and the psychopathy subscales as was found in the CCA. Strong overlap was present among lower Conscientiousness and greater Impulsivity in the CCA as well. Each time Impulsivity was associated with an outcome in Model Two (i.e., Deviant Attitudes, Delinquency), Conscientiousness was no longer significant as it was in Model One, even though Conscientiousness had a stronger association with Deviant Attitudes at the univariate level.

The results from Model Two showed strong support for the associations between Callous-Unemotionality and antisociality, as Callous-Unemotionality was the only psychopathy subscale to predict each of the five antisocial outcomes. The finding that Callous-Unemotionality was associated with each antisocial outcomes is consistent with literature and has been replicated by various studies (Barry et al., 2000; Ciucci et al., 2015; Fanti et al., 2009; Kerig & Stellwagen, 2010; Waller et al., 2017). Interestingly, bivariate relationships with Callous-Unemotionality, Narcissism, and Impulsivity showed that sometimes Narcissism and Impulsivity had stronger associations with the antisocial

outcomes than Callous-Unemotionality. However, in reference to the CCA, the Callous-Unemotional subscale had the least overlap with the HEXACO-PI-R of all the psychopathy subscales. Thus, the large significant associations found with the Callous-Unemotional subscale in Model Two may be related to its small overlap with the HEXACO-PI-R in the CCA, as the Callous-Unemotionality may have had a greater capacity to relate to the various outcomes would being diluted by the overlap of some of the other APSD-YV subscales and HEXACO factors. The findings from the current study may suggest that even though every one of the HEXACO factors were negatively associated with the Callous-Unemotional subscale at the univariate level—especially Honesty-Humility and Conscientiousness—one potential disadvantage of the HEXACO-PI-R may be its smaller overlap with the Callous-Unemotional subscale (i.e., CCA), as Model Two showed that callous-unemotional traits are especially important in terms of their relationships to adolescent antisociality.

Implications

Findings from Model Two, in conjunction with the findings from the previous two analyses (i.e., CCA, Model One), has helped to create a more comprehensive picture of how personality traits can relate to adolescent antisociality than what has been shown so far in the literature. This study has many implications for how we think about and assess (e.g., self-report, general research, clinical contexts) adolescent antisociality for both theory and practice. First, in terms of theory, there has been some debate as to whether personality constructs should be considered as separate categories, where individuals either do or do not belong to a specific category, or as dimensional traits, where individuals all have the same broad traits but vary on the dimensions of those

traits. The choice between using a broad or specific personality measure when aiming to better understand adolescent antisociality falls within this theoretical debate directly. For example, with a broad measure of personality like the HEXACO-PI-R, it may be more developmentally and evolutionarily plausible to consider personality traits as belonging to broad categories (i.e., factors) that all individuals possess different levels of (i.e., all individuals have the broad personality factor Extraversion, but exhibit more or less of this trait). If everyone has the same broad traits that vary by degree, then a broad measure should have the strongest associations with antisocial behaviour among a variety of samples.

However, if on the other hand, some personality traits really are unique to specific categories and individuals (i.e., where some individuals have the callous-unemotional trait whereas some do not), then specific measures like the APSD-YV can offer something more. In other words, if only some individuals have the specific traits that are highly related to antisociality, then these specific traits—and specific personality measures—may be associated with antisociality above and beyond the broad traits that everyone might have. As will be discussed in the limitations section, the psychopathy measure I used was a mixed personality and behavioural measure. It is possible that use of a completely personality based psychopathy measure could have led to different results, where the HEXACO-PI-R was associated more or less strongly with the antisocial outcomes.

In terms of practice, with the hope of providing earlier interventions prior to adulthood or even incarceration, several researchers have discussed the prospect of using different personality measures and traits to help identify adolescents who are exhibiting

early signs of psychopathic traits. Although there is evidence for the emergence of psychopathy in children and youth, there is limited information available for researchers or clinicians regarding meaningful cut off scores that indicate whether or not a child is likely to develop psychopathy, whether a child will be responsive to treatment, or whether a certain score will predict arrest or recidivism (Frick et al., 2000). Frick and colleagues (2000) discussed how many interventions have been developed for children with Conduct Disorders, and have been tested systematically with children who do not have callous-unemotional traits. However, there does seem to be some support for treatments and interventions targeted for youth with psychopathic traits. One study investigating violent recidivism rates among groups of juvenile offenders who were high in psychopathy found that at a two-year follow-up, juvenile offenders at a correctional institution were twice as likely to violently reoffend in their communities than juvenile offenders who were in an intensive treatment program (Caldwell et al., 2006). Skeem and colleagues (2002) found that compared to non-psychopathic civil psychiatric patients, psychopathic civil psychiatric patients who received an equal amount of outpatient mental health treatment had the same level of reduced violence in their community.

When it comes to identifying adolescent antisociality earlier in development, the current findings show that both broad personality and specific psychopathy measures of are compatible, but that there may be instances in which one may have more contextual or applied advantages than the other. For example, given that the Honesty-Humility and Conscientiousness factors were associated with every one of the antisocial outcomes, the HEXACO-PI-R can be used as a starting point for researchers or adults who feel that there is a need to better understand an adolescent, or group of adolescents, who may be

at-risk for engaging in lower intensity antisocial behaviour. Other advantages include more item information (i.e., due to having several broad factors), cross-cultural validity, absence of stigma from taking the survey, and less probability of missing a potential child who may need help, as specific measures tend to have narrow facets that relatable to smaller or more extreme groups of people.

Alternatively, in settings where adolescents may be engaging in dangerous or violent antisocial behaviour, a measure like the APSD-YV may be able to capture the finer details of antisociality that may be missed with broader multidimensional measures like the HEXACO-PI-R (Jones et al., 2011). Because specific measures like the APSD-YV have been strongly associated with higher intensity specific antisocial behaviours (e.g., Aggression, Bullying, Delinquency), when there is a high risk of missing an adolescent who has not been identified, a specific measure of personality may have the greatest predictive potential. However, as will be discussed in the limitations section, the idea that the APSD-YV contains some behavioural items may have had an influence on why the HEXACO was at times outperformed by the psychopathy measure, although more research needs to be conducted on this topic.

Limitations and Future Directions for Research

Because one of the goals of the current study was to determine how two different types of personality measures would compare in terms of their associations to adolescent antisociality, one limitation was that the APSD-YV was partially composed of behavioural items. Behavioural characteristics are likely to have associations than interpersonal traits, especially when the scale contains both behaviours and traits. It is possible that the subscales of the APSD-YV—which were designed to mimic Factor 1

and Factor 2 of psychopathy—contributed to why the APSD-YV had stronger associations than the HEXACO-PI-R with the higher intensity antisocial behaviours. Future studies that explore such questions may be interested in seeing whether a broader measure could explain more of the variability in antisocial outcomes if a psychopathy measure without behavioural items is included as the comparison.

A second limitation is the poor internal consistency of the some of the measures in the study. Concerns of low reliability may suggest that if another researcher was to conduct the same study, there may be some variations some of the findings. Other researchers have found that subscales like Callous-Unemotional and Impulsivity of the APSD-YV tend to have lower reliability. For example, Kotler & McMahon (2005) found that youth self-report ratings on the APSD-YV generated the lowest reliabilities, as opposed to staff ratings. As a way to improve upon the measurement of callous and unemotional traits in the APSD-YV, Frick (2004) developed the Inventory of Callous Unemotional Traits (ICU). The Callous-Unemotional subscale in comparison to the ICU has limited response options, a smaller number of items that assess the affective features of psychopathy, and only one non-reversed item (Roose et al., 2009).

When certain items are likely to invoke socially desirable responding, researchers often reverse those items as a precaution (Murphy & Davidshofer, 2014). In the Callous-Unemotional subscale of the APSD-YV, all of its items were reversed except for Item 19. Because Item 19 "You hide your feelings or emotions from others" was not reversed, this may have allowed the participants to see that the item was asking them to indicate whether they are superficial or fake, which can increase dishonest responses and decrease internal consistency. In fact, in the current study, a reliability analysis showed that the

inclusion of the non-reversed Item 19 made the subscale's reliability decrease 14 units to an alpha of .50. When I conducted further bivariate correlations with the Callous-Unemotional subscale and all of its items (*see* Table 5), Item 19 was not significantly related to most of the other variables that it should have been displaying concurrent validity with. Item 19 was not included in any other analyses. Other scales that also had lower reliability included Impulsivity of the APSD-YV, Honesty-Humility and Agreeableness of the HEXACO, Social Competence, Close Friendships, Behavioural Problems, and Reactive Aggression.

The third limitation of the current study was a concern regarding the validity of the Narcissism subscale. As highlighted previously, only two of the items in the Narcissism seemed like they more completely resembled narcissistic traits or behaviours like Item 8 "You brag a lot about your abilities, accomplishments, and possessions" and Item 16 "You think you are better or more important than other people." Narcissism also was not related to items such as "I have special talents and skills", "I dress well and I'm in style", "I am tough" on the Peer Valued Characteristics scale, nor was it related to other variables that often are associated with narcissism, like feeling that one has heightened social or athletic competence, as well as a better physical appearance than others (*see* Table 7). Bivariate correlations showed that Narcissism was strongly associated with lower Honesty-Humility and manipulative-type traits, which helped guide the interpretation of the CCA and Model Two. Because Narcissism overlapped with Honesty-Humility in the CCA (*see* Table 9), and was strongly related to lower Honesty-Humility (*see* Table 3), as mentioned, this could partially explain why the Honesty-Humility factor was no longer significantly associated with some of the

antisocial outcomes when Narcissism was included in Model Two.

The final main limitation of the current study was related to demographics, as my sample was a non-clinical, cross-sectional sample of adolescents who were mostly girls of White ethnicity. This sample limits the generalizability and representativeness of the current study, which aimed to represent Canadian adolescents from the community. Thus, in addition to the suggestions listed above (e.g., using a psychopathy personality measure without behavioural items, using more reliable instruments, a more representative sample), future research may conduct similar analyses with younger and older adolescents to determine whether there are differences in how broad versus specific measures associate with antisociality among different age groups. Further, this study only had five antisocial outcomes when many other types of antisocial outcomes could have been studied. The outcomes in the current study could also be separated to examine how broad and specific traits relate to other antisocial outcomes among adolescents like Theft, Violence, Vandalism, and Substance Use, which are part of the Delinquency scale.

Conclusion

The findings from the current study suggest that the items and scales (i.e., Callous-Unemotional, Narcissism) that reflect lower Honesty-Humility and Callous-Unemotionality had the strongest associations with adolescent antisociality, followed by Conscientiousness and Impulsivity. This study showed that the HEXACO-PI-R was associated with a wide spectrum of antisocial outcomes. Interestingly, the HEXACO-PI-R may be especially important for use with younger adolescents, who additionally, had significant associations between Emotionality, Extraversion, and Agreeableness with antisocial outcomes at the univariate level. A meta-analytic study conducted on antisocial

behaviour and the Five Factor/Big Five (Costa & McCrae, 1992) measure of personality also found that Agreeableness and Conscientiousness were important factors associated with antisocial behaviour (Jones, Miller, & Lynam, 2011). However, the HEXACO-PI-R, with the addition of the Honesty-Humility factor, has shown that it may in fact be the Honesty-Humility and Conscientiousness traits that have the strongest relationships with a wide range of antisocial outcomes, although Agreeableness had a strong association with Aggression as well.

One thing to consider is that if the HEXACO-PI-R could have stronger associations with antisocial outcomes than a personality based psychopathy measure, this could have a substantial bearing on research focused on early identification and interventions with high-risk youth, however, little research of this nature exists (Barry et al., 2000; Caldwell, 2011; da Silva et al., 2013; Gumpel, 2014; Kotler & McMahon, 2005). Although this study did not separate path Models One and Two by younger and older adolescents like the correlations, it is important to note that the HEXACO-PI-R did show its ability to associate with all of the antisocial behaviours and attitudes, including for some of the lower intensity outcomes that were intermixed with significant psychopathy predictors in Model Two.

On the other hand, it may be that the HEXACO-PI-R is better equipped to capture subtle and lower intensity antisocial outcomes like packing up books early, and adolescents' tolerant attitudes towards crime, than specific measures like the APSD-YV. Because specific measures tend to have items that span a narrow range of traits or behaviours, it is also possible that such measures are better equipped to predict the finer details of specific antisocial behaviours. If the HEXACO-PI-R is better than a specific

measure at detecting lower intensity broad antisocial outcomes as the current study suggests, this can be considered a crucial finding. Literature has shown that low-severity conduct problems and attitudes may be notable early warning signs of antisociality that may continue throughout the lifespan (Arbuckle & Cunningham, 2012; Gumpel, 2014). The lives of adolescents are impacted everyday by consequences of inaccurate self-reports or clinical measures, which have led to stigmatization, unsuccessful diagnoses, medication, and even societal misinterpretations from research. Considering context when assessing adolescent antisociality is crucial, as some measures may have features (e.g., cross-cultural validity) that may be especially important to a specific individual or sample. Regardless of whether broad or specific measures of personality are chosen in assessment or research settings, careful planning with a thorough gage on the context, sample, psychometric properties, and history of the scales must be a priority that accompanies the use of both.

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Appendix A: Demographic Questionnaire

1. Please type in your unique Identity (ID) Number on your assent form, located below the website link: _____
2. How old are you?_____
3. Are you a boy or a girl?_____
4. What grade are you in?_____
5. Which parents do you live with at home?
    a. Birth Parents
    b. Adopted Parents
    c. Just Mom
    d. Just Dad
    e. Mom and Step Dad
    f. Dad and Step Mom
    g. Other
6. If your parents are divorced, how long have they been divorced?_____
7. How many biological brothers do you have?_____
8. How many biological sisters do you have? _____
9. How many step/half-brothers do you have? _____
10. How many step/half-sisters do you have? _____
11. What is your ethnic/racial background?_____
12. Compared to the average Canadian, do you think your family is (circle one):
    a. A lot less rich
    b. Less rich
    c. About the same
    d. More rich
    e. A lot more rich
13. In your neighborhood, how much income inequality is there amongst the families?
    a. A low amount
    b. A medium amount
    c. A high amount
14. How important is being wealthy/having money to you?
    a. Very important
    b. Somewhat important
    c. Not very important
    d. Not at all important
15. What is the highest level of education that your mother has completed? (circle one)
    a. Some high school
    b. Finished high school
    c. Some college/university/apprenticeship program
    d. Finished college/university/apprenticeship program
    e. Finished a professional degree (e.g., Master's, Doctorate)

16. What is the highest level of education that your father has completed? (circle one)
    a. Some high school
    b. Finished high school
    c. Some college/university/apprenticeship program
    d. Finished college/university/apprenticeship program
    e. Finished a professional degree (e.g., Master's, Doctorate)
17. What is the name of your school? _____
18. In what city do you go to school? _____
19. What grade, on average, do you typically receive in school?
    a. (80-100%)
    b. (70-79%)
    c. (60-69%)
    d. (59% or lower)
20. How did you find out about this study?
    a. Sports team
    b. Youth club (e.g., Scouts, Cadets)
    c. School
    d. Tutoring center
    e. Other club (e.g., art, drama)
    f. Other _____

Appendix B: HEXACO Personality Inventory-Revised

Instructions: Please read each statement and decide how much you agree or disagree with that statement. Then write your response in the space next to the statement using the following scale. Please answer every statement, even if you are not completely sure of your response.

1	**2**	**3**	**4**	**5**
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

1. I would be quite bored by a visit to an art gallery.
2. I plan ahead and organize things, to avoid scrambling at the last minute.
3. I rarely hold a grudge, even against people who have badly wronged me.
4. I feel reasonably satisfied with myself overall.
5. I would feel afraid if I had to travel in bad weather conditions.
6. I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed.
7. I'm interested in learning about the history and politics of other countries.
8. I often push myself very hard when trying to achieve a goal.
9. People sometimes tell me that I am too critical of others.
10. I rarely express my opinions in group meetings.
11. I sometimes can't help worrying about little things
12. If I knew that I could never get caught, I would be willing to steal a million dollars.
13. I would enjoy creating a work of art, such as a novel, a song, or a painting.
14. When working on something, I don't pay much attention to small details.
15. People sometimes tell me that I'm too stubborn.
16. I prefer jobs that involve active social interaction to those that involve working alone.
17. When I suffer from a painful experience, I need someone to make me feel comfortable.
18. Having a lot of money is not especially important to me.
19. I think that paying attention to radical ideas is a waste of time.
20. I make decisions based on the feeling of the moment rather than on careful thought.
21. People think of me as someone who has a quick temper.
22. On most days, I feel cheerful and optimistic.
23. I feel like crying when I see other people crying.
24. I think that I am entitled to more respect than the average person is.
25. If I had the opportunity, I would like to attend a classical music concert.
26. When working, I sometimes have difficulties due to being disorganized.
27. My attitude toward people who have treated me badly is "forgive and forget."
28. I feel that I am an unpopular person.
29. When it comes to physical danger, I am very fearful.
30. If I want something from someone, I will laugh at that person's worst jokes.
31. I've never really enjoyed looking through an encyclopedia.
32. I do only the minimum amount of work needed to get by.

33. I tend to be lenient in judging other people.
34. In social situations, I'm usually the one who makes the first move.
35. I worry a lot less than most people do.
36. I would never accept a bribe, even if it were very large.
37. People have often told me that I have a good imagination.
38. I always try to be accurate in my work, even at the expense of time.
39. I am usually quite flexible in my opinions when people disagree with me.
40. The first thing that I always do in a new place is to make friends.
41. I can handle difficult situations without needing emotional support from anyone else.
42. I would get a lot of pleasure from owning expensive luxury goods.
43. I like people who have unconventional views.
44. I make a lot of mistakes because I don't think before I act.
45. Most people tend to get angry more quickly than I do.
46. Most people are more upbeat and dynamic than I generally am.
47. I feel strong emotions when someone close to me is going away for a long time.
48. I want people to know that I am an important person of high status.
49. I don't think of myself as the artistic or creative type.
50. People often call me a perfectionist.
51. Even when people make a lot of mistakes, I rarely say anything negative.
52. I sometimes feel that I am a worthless person.
53. Even in an emergency I wouldn't feel like panicking.
54. I wouldn't pretend to like someone just to get that person to do favors for me.
55. I find it boring to discuss philosophy.
56. I prefer to do whatever comes to mind, rather than stick to plan.
57. When people tell me that I'm wrong, my first reaction is to argue with them.
58. When I'm in a group of people, I'm often the one who speaks on behalf of the group.
59. I remain unemotional even in situations where most people get very sentimental.
60. I'd be tempted to use counterfeit money, if I were sure I could get away with it.

<u>Scoring Key</u>
Honesty-Humility: 6, 12(R), 18, 24(R), 30(R), 36, 42(R), 48(R), 54, 60(R)
Emotionality: 5, 11, 17, 23, 29, 35(R), 41(R), 47, 53(R), 59(R)
eXtraversion: 4, 10(R), 16, 22, 28(R), 34, 40, 46(R), 52(R), 58
Agreeableness: 3, 9(R), 15(R), 21(R), 27, 33, 39, 45, 51, 57(R)
Conscientiousness: 2, 8, 14(R), 20(R), 26(R), 32(R), 38, 44(R), 50, 56(R)
Openness: 1(R), 7, 13, 19(R), 25, 31(R), 37, 43, 49(R), 55(R)

Appendix C: Antisocial Process Screening Device-Youth Version

Instructions: Please read each statement and decide how well it describes you. Mark your answer by checking the appropriate number (0-2) for each statement. Do not leave any statement unrated.

0	**1**	**2**
Not At All True	Sometimes True	Definitely True

1. (IMP) You blame others for your mistakes.
2. (Not Included) You engage in illegal activities.
3. (CU) You care about how well you do at school/work.
4. (IMP) You act without thinking of the consequences.
5. (NAR) Your emotions are shallow and fake.
6. (Not Included) You lie easily and skillfully.
7. (CU) You are good at keeping your promises.
8. (NAR) You brag a lot about your abilities, accomplishments, and possessions.
9. (IMP) You get bored easily.
10. (NAR) You use or "con" other people to get what you want.
11. (NAR) You tease or make fun of other people.
12. (CU) You feel bad or guilty when you do something wrong.
13. (IMP) You do risky or dangerous things.
14. (NAR) You act charming and nice to get things you want.
15. (NAR) You get angry when corrected or punished.
16. (NAR) You think you are better or more important than other people.
17. (IMP) You do not plan ahead or you leave things until the "last minute."
18. (CU) You are concerned about the feelings of others.
19. (CU) You hide your feelings or emotions from others.
20. (CU) You keep the same friends.

<u>Scoring Key</u>
Callous-Unemotional (CU): 3(R), 7(R), 12(R), 18(R), 19, 20(R)
Narcissism (NAR): 5, 8, 10, 11, 14, 15, 16
Impulsivity (IMP): 1, 4, 9, 13, 17
Not Included: 2, 6

Appendix D: Classroom Incivility Scale

Instructions: Please indicate the answer that best describes your belief about each of the following situations:

1	**2**	**3**	**4**	**5**
Definitely Wrong	Sort of Wrong	Neither Wrong Nor Right	Sort of OK	Definitely OK

1. Packing books up before a lesson is over.
2. Making fun of a classmate who answered a question wrong.
3. Sending text messaging/notes during class.
4. Posting nasty notes on bulletin boards about a classmate.
5. Reading, going online, or playing a game during a lesson.
6. Calling a classmate names because they did not agree with your opinion.
7. Eating lunch during class.
8. Spreading rumours about or try to exclude a classmate you dislike.
9. Sleeping in class.
10. Fighting with another student in class (physical or verbal).

Scoring Key
Intentional Incivility: 2, 4, 6, 8, 10
Unintentional Incivility: 1, 3, 5, 7, 9

Appendix E: Jessor's Attitudinal Intolerance of Deviance Scale

Instructions: Please indicate how wrong you think it is to do the following things.

1	**2**	**3**	**4**
Very Wrong	Wrong	A Little Bit Wrong	Not At All Wrong

1. To take little things that don't belong to you.
2. To give your teacher a fake excuse for being absent.
3. To bother people in a movie theatre even if you have been asked to stop.
4. To borrow $5 or so from a friend without really expecting to pay it back.
5. To cheat on a test.
6. To skip school without a good excuse.
7. To get into fist fights with other people.
8. To break something that belongs to another person just to get even.
9. To break into a place that is locked just to look around.
10. To damage public or private property that does not belong to you just for fun.
11. To threaten a teacher because you were angry about something at school.

Appendix F: Reactive-Proactive Aggression Questionnaire

Instructions: Please enter your rating for each item based on the rating scale below.

1	**2**	**3**	**4**	**5**
Never	Hardly Ever	Sometimes	Fairly Often	Almost Always

1. When I have been teased or threatened I get angry easily and strike back.
2. I use physical force (or threaten to us physical force) to dominate other kids.
3. When a peer has accidentally hurt me (such as by bumping into me), I assume he or she meant to do it, and react by getting angry and fighting.
4. I threaten or bully others in order to get my way.
5. I say that other kids are to blame for fights and feel that they started all the trouble.
6. I get others to gang up on a peer I don't like.

Scoring Key
Reactive Aggression: 1, 3, 5
Proactive Aggression: 2, 4, 6

Appendix G: School Bullying Questionnaire

Instructions: Below are some questions about social relationships at school. Please answer them as honestly as you can. Your answers will be kept completely confidential, and there is no way for anyone to determine your answers about your relationship with them or anyone else.

1	**2**	**3**	**4**	**5**
That Hasn't Happened	Once or Twice	Once a Month	Once a Week	Several Times a Week

1. In school, how often have you made fun of someone much weaker or less popular because of their religion or race last term?
2. In school, how often have you made fun of someone much weaker or less popular because of the way they looked or talked last term?
3. In school, how often have you hit, slapped, or pushed someone much weaker or less popular last term?
4. In school, how often have you threatened, yelled at, or verbally insulted someone?
5. In school, how often have you spread rumours, mean lies, or actively excluded someone much weaker or less popular last term?
6. In school, how often have you made sexual jokes, comments, or gestures aimed at someone much weaker or less popular last term?
7. In school, how often have you made any of the acts against someone electronically?

Appendix H: Self-Report Delinquency Questionnaire

Instructions: Please indicate how often you have done the following over the past 12 months.

1	**2**	**3**	**4**
Never	Rarely	Sometimes	Often

1. Purposely broken or destroyed musical instruments, sports equipment or other school equipment?
2. Taken and kept any school property worth $10 or more?
3. Purposely broken a part of the school (windows, walls, etc.)?
4. Taken and kept something from a store without paying?
5. Threatened to hit someone or to force them to do something they didn't want to do?
6. Taken part in fights between groups of youth (gangs)?
7. Purposely break or destroy something that didn't belong to you?
8. Taken and kept something worth less than $10, that didn't belong to you?
9. Taken and kept something worth $100 or more that didn't belong to you?
10. Bought or sold something you knew was stolen?
11. Purposely destroyed an antenna, tires or some other part of a car?
12. Entered a place where you were not allowed?
13. Taken and kept something worth between $10 and $100 that didn't belong to you?
14. Gone without paying to a place where you should have paid? (movie theatre, concert, sports event?)
15. Used a weapon (stick, knife, gun, rocks) in fighting with someone else?
16. Purposely broken or destroyed something belonging to your parents or another family member?
17. Taken money from the house without permission, or without the intent of saying anything?
18. Broken open a window or door and entered somewhere to take something?
19. Carried a weapon (chain, knife, gun, etc.)?
20. Started a fire in a store or elsewhere?
21. Thrown rocks, bottles or other objects at someone?
22. Hit someone who hadn't done anything?
23. Taken and kept a bicycle that didn't belong to you?
24. Had a fist fight with anyone?
25. Drank alcohol?
26. Got drunk on beer, wine, or other alcoholic beverages?
27. Used marijuana?

<u>Scoring Key</u>
Theft: 2, 4, 8, 9, 10, 12, 13, 14, 17, 18, 23
Vandalism: 1, 4, 7, 11, 16, 20
Violence: 5, 6, 15, 19, 21, 22, 24
Substance Use: 25, 26, 27

Appendix I: Description of Measures Included to Explore the Validity of the APSD-YV

Self-Perception Profile for Adolescents. The Self-Perception Profile for Adolescents (Appendix J) is an adapted self-report developed by Wichstrom (1995), and it contains 35-items and seven subscales ranging from poor to high reliability. The subscales included in the present study are Behavioural Conduct, Social Competence, Athletic Competence, Physical Appearance, and Close Friendship. Reliability coefficients ranged from very poor to high reliability (α = .46 to α = .81). Sample items include "I usually do the right thing" for Behavioural Conduct, "I know how to make classmates like me" for Social Competence, "I do very well at all kinds of sports" for Athletic Competence, "I really like my looks" for Physical Appearance, and "I am able to make really close friends" for Close Friendship. The items on this scale range from (1 = *Describes Me Very Poorly* to 4 = *Describes Me Quite Well*). For the current study Behavioural Conduct scoring was reversed to reflect Behavioural Problems.

Peer Valued Characteristics. Peer Valued Characteristics (Appendix K) was developed by Knack and colleagues (2012) and it is a 14-item measure with high reliability (α = .86). Sample items from this measure are "I dress well and I'm in style" and "I am good looking and attractive." The items on this scale range from (1 = *Very Untrue of Me* to 7 = *Very True of Me*).

Social Dominance and Resource Control. Social Dominance and Resource Control (Appendix L) has been adapted by Hawley (2003). The measure contains 41-items and five scales. Only Interpersonal Influence (α = .84) was used in the current study, which has 6 items and demonstrated high reliability. One item includes "I usually get my way when I deal with others." The items on this scale range from (1 = *Never True* to 5 = *Almost Always True*).

Student Discipline Scale. The Student Discipline subscale (α = .78) is derived from the Vessels School Climate Survey developed by Vessels (1998) (Appendix M) and it contains 14-items and demonstrated acceptable reliability. The survey asks adolescents to rate items related to school discipline such as, "Teachers do not shout at students or show hostility toward them in any way" or "Very few students break rules intentionally to provoke their peers." The items on this scale range from (1 = *strongly disagree* to 4 = *strongly agree*).

Academic Competition Scale. The Academic Competition subscale is derived from the Social and Academic Competition Scale developed by Sutton and Keogh (2000) (Appendix N). This measure contains 12-items and two subscales, however only School Conscientiousness (α = .70) will be used in the current study, which demonstrated acceptable reliability (Sutton & Keogh, 2000). Sample items from the subscales include, "I try hard so that the teacher doesn't get cross with me", for School Conscientiousness. The items on this scale range from (1 = *strongly disagree* to 4 = *strongly agree*).

Means, Standard Deviations, Skewness, Kurtosis, and Internal Consistencies (N = 396) for Variables Used to Examine Validity

	M (*SD*)	Skewness	Kurtosis	α (n of items)
Peer Valued Characteristics	5.03 (.97)	-.49	.17	.86 (9)
Social Competence	3.15 (.45)	-1.12	2.10	.63 (5)
Athletic Competence	3.31 (.55)	-1.12	1.58	.74 (5)
Physical Appearance	3.21 (.72)	-1.81	2.85	.81 (5)
Close Friendship	3.46 (.44)	-1.35	2.05	.46 (5)
Behavioural Problems	1.58 (.37)	.75	1.18	.55 (5)
Proactive Aggression	1.30 (.58)	2.11	3.29	.89 (3)
Reactive Aggression	1.64 (.65)	.89	-.20	.65 (3)
Interpersonal Influence	2.70 (.76)	.00	.21	.84 (6)
Student Discipline	2.55 (.38)	-.30	.74	.78 (14)
School Conscientiousness	3.19 (.47)	-.33	.06	.70 (6)

Note. α = Cronbach's alpha; Some variables included within validity correlations are already listed in Table 2 due to their inclusion within the main analyses.

Appendix J: Self-Perception Profile for Adolescents

Instructions: Please indicate the degree to which each statement describes you.

1	**2**	**3**	**4**
Describes Me Very Poorly	Describes Me Quite Poorly	Describes Me Quite Well	Describes Me Very Well

1. I am just as smart as others.
2. I find it hard to make friends.
3. I do very well at all kinds of sports.
4. I am not happy with the way I look.
5. I feel that if I am romantically interested in someone, that person will like me back.
6. I usually do the right thing.
7. I am able to make really close friends.
8. I am pretty slow in finishing my school work.
9. I know how to make classmates like me.
10. I think I could do well at just about any new athletic activity.
11. I wish my body was different.
12. I am not dating the people that I am really attracted to.
13. I often get in trouble because of the things I do.
14. I don't know how to find a close friend with whom I can share secrets.
15. I do very well with my classwork.
16. I don't have the social skills to make friends.
17. I feel I am better than others my age at sports.
18. I wish my physical appearance was different.
19. I feel that people my age will be romantically attracted to me.
20. I feel really good about the way I act.
21. I do know what it takes to develop a close friendship with a peer.
22. I have trouble figuring out the answers in school.
23. I understand how to get peers to accept me.
24. I don't do well at new outdoor games.
25. I really like my looks.
26. I feel that I am fun and interesting on a date.
27. I do things I know I shouldn't do.
28. I find it hard to make friends I can really trust.
29. I feel that I am pretty intelligent.
30. I know how to become popular.
31. I do not feel that I am very athletic.
32. I really like my looks.
33. I don't go out with people I would really like to date.
34. I usually act the way I know I am supposed to.

35. I don't understand what I should do to have a friend close enough to share personal thoughts with.

Scoring Key
Social Competence: 1, 8(R), 15, 22(R), 29
Athletic Competence: 3, 10, 17, 24(R), 31(R)
Physical Appearance: 4(R), 11(R), 18(R), 25, 32
Behavioural Conduct: 6(R), 13, 20(R), 27, 34(R)
**Behavioural conduct items reversed for higher scores to reflect greater behavioural problems.*
Close Friendship: 7, 14(R), 21, 28(R), 35(R)

Appendix K: Peer Valued Characteristics

Instructions: Rate how true the following statements are of you.

1	**2**	**3**	**4**	**5**	**6**	**7**
Very Untrue of Me	Untrue of Me	Somewhat Untrue of Me	Neither True Nor Untrue	Somewhat True of Me	True of Me	Very True of Me

1. I dress well and I'm in style.
2. I am good looking and attractive.
3. I am tough**.**
4. I have a lot of cool things or possessions**.**
5. I have a good sense of humour and can make people laugh**.**
6. Compared to others, I am rich**.**
7. I have special talents and skills.
8. I do well at sports.
9. People think I'm cool.

Appendix L: Social Dominance and Resource Control Scale

Instructions: Please enter your rating for each item based on the rating scale below.

1	**2**	**3**	**4**	**5**
Never True	Hardly Ever True	Sometimes True	Often True	Almost Always True

1. I am good at being able to get what I want from others.
2. I usually get what I need, even if others don't.
3. I am able to get others to do what I say.
4. I have a lot of power over others.
5. In groups I am usually in charge or in control.
6. I usually get my way when I deal with others.

Scoring Key

Items from General Resource Control or Interpersonal Influence subscale.

Appendix M: Student Discipline Scale

Instructions: Please enter your rating for each item based on the rating scale below.

1	**2**	**3**	**4**
Strongly Disagree	Disagree	Agree	Strongly Agree

1. Rules and consequences for breaking rules are made with student input and are viewed as fair.
2. Special recognition for good citizenship and good character is commonplace.
3. Very few students break rules intentionally to provoke their peers.
4. It is common to see students praising students and teachers praising teachers.
5. Students maintain self-control when the teacher has to leave the room.
6. The grading system we use motivates both high and low ability students.
7. Students rarely have to be sent out of class or placed in timeout.
8. Teachers spend more time teaching than disciplining and doing required paperwork during class.
9. Teasing and picking are rare because students treat others like they want to be treated.
10. Students are more often sad than angry when they get in trouble with their teachers.
11. Teachers do not shout at students or show hostility toward them in any way.
12. Teachers frequently call parents to report student successes and not just bad behaviour.
13. There are few students in the halls and in the office during class time.
14. Students respectfully correct peers who are unfair, impatient, selfish, destructive, or hurtful.

Appendix N: Academic Competition Scale

Instructions: Please rate how much you agree with each of the sentences using the rating scale below.

1	**2**	**3**	**4**
Never	Rarely	Sometimes	Often

1. I try hard to prove to myself that I can do well.
2. I try hard to prove to other people that I can do well.
3. I try hard because my parents like me to do well.
4. I try hard because I enjoy the feeling of doing well.
5. I say I don't care how well I have done, but I really do.
6. I try hard so that the teacher doesn't get cross with me.

Appendix O: Letter of Invitation with Consent Form for Extracurricular Organizations

Dear EXTRACURRICULAR ORGANIZATION

My name is Dr. Anthony Volk. I am a professor of Child and Youth Studies at Brock University. I am currently working with a team of faculty and student collaborators in a study of adolescent relationships. We are particularly interested in how extracurricular participation influences experiences of bullying and relationships in adolescents. As a result, we are interested in asking the members of your organization to participate in our study. Participation is purely voluntary, but prior to participating in the study, your members must obtain parental consent. To do so, we provide a sealed envelope for the parents that contain an information form, a permission form, and another sealed envelope that contains an assent form and website link to Qualtrics, an online survey website for adolescents to fill out. Those who return completed consent forms will receive $15 cash for their participation. If parental consent is denied, the members still receive the money, but we don't use their data. The questionnaires are private, and they ask your members to discuss their social relationships with their parents and friends, and also on their own personality and individual characteristics.

No personal information is collected on any of the forms, so their confidentiality, and the confidentiality of your organization, is preserved. We therefore can't provide you with specific feedback regarding bullying in your organization, but we can provide you with the overall results of our study after it is completed in 2016. We do provide information regarding resources (including our lab) that the participants can access should they be experiencing problems with bullying.

Specifically, what we would need from you and your organization is a time to come in and talk to your members about participating in the study. At this point we will explain the study, answer any questions they have, and pass out the forms. We will then arrange for a time to return to your organization to pick up any completed forms and answer any further questions, comments, or concerns that they may have.

If you have any questions about this study, please feel free to contact me **at** tvolk@brocku.ca **or 905-688-5550 Ext. 5368**, or the Brock University Research Ethics Office at (905) 688-5550 Ext. 3035, reb@brocku.ca. The Research Ethics Board has provided ethic clearance for this study. If you are interested in allowing us to come and talk to your members, please let us know.

Thank you very much for your consideration of our request!

[___] Yes, I am interested in allowing you to present your study

[___] No, I am not interested in allowing you to present your study

Signed :_____

Date: _____

Appendix P: Parent Information Sheet and Consent Form

Adolescent Relationships Parental Form

Please keep this form for your records.

Principal Investigator:
Dr. Anthony Volk, Professor
Department of Child and Youth
Studies Brock University
905-688-5550 xt.
5368
tvolk@brocku.ca

INVITATION

Your son/daughter has been invited to participate in a study that involves research into adolescent relationships. The purpose of this study is to better understand how adolescent relationships in one domain (e.g., parents) influence their relationship in another (e.g., personality, school, or peers). What follows are the specific goals of the study.

We are interested in exploring factors associated with adolescent social relationships including personality, peer relationships, and school factors. For instance, we are interested in how an adolescent's individual traits, such as personality, influence the likelihood that they will be a bully and/or a victim. So far, no one has looked at most of these factors in teenagers, and no one has looked at the combination of all these factors. We believe that answering these questions will give us a much better idea of what factors are involved in adolescent social relationships. We would like to note that a small number of the questions are about violence, sexual activity and related behaviors.

WHAT'S INVOLVED

As a participant, your son/daughter has been asked to fill out questionnaires about themselves, their friends, their peers, their parents, and their basic demographics (e.g., age) on an online survey website. Participation will take approximately 45-50 minutes of their time. Only the researchers will see these responses, and the only ties to participant names will be a unique Identification (ID) number that will be used to confirm participation so that participants can receive $15 cash for participating. The ID number will not be linked to any other responses to the questionnaires. They will only be linked to participant names on the consent forms, which will be stored separately in a filing cabinet separate from questionnaire responses. The original consent form, which includes the unique identification number, will only be removed from the filing cabinet in the event that the participant chooses to withdraw from the study. In such an event, the removed identification number will be used to identify the participant's response in the questionnaire database, and the data will be deleted.

POTENTIAL BENEFITS AND RISKS

Possible benefits of participation include getting to know their own relationships better, and learning more about adolescent relationships in general through reflection on some of the participants' own relationships. There also may be risks associated with participation in that some relationships are stressful to think about. If they find any part of this study to be stressful, they may contact the researcher, the Brock University Ethics board, or simply stop their participation.

We also tell your son/daughter that "[they] may also freely discuss the study with parents or friends if [they] need to, although we would ask that [they] try not to talk to someone before [they] complete the study on [their] own (e.g., don't share answers until both have completed the study). Sharing answers before the study ends can complicate and/or change their own natural answers. We do not ask any specific questions regarding specific incidents, **so there are no issues of personal or legal liability for any of your son/daughter's answers, nor are we legally obligated to disclose any of their answers (including abuse or harm) to our questions.**

All participants will be offered $15 cash for their participation. They will receive this payment once the completed forms are returned. Once receiving the $15, participants will have to sign a sheet for our records indicating you have received the payment.

CONFIDENTIALITY

Participants in this study will only be identified by a unique number that is tied to a master list kept by Dr. Volk. You, or they, may request the withdrawal of their data from the study within 5 years of their participation. Unique, identifiable data (such as date of birth, names) will not be collected.

As a parent, you will have to consent to your son/daughter's participation, **but you will not gain access to their answers. You may only control whether WE are able to view their answers or not by providing or withdrawing your consent**. *We feel that it is very important for the participants in our study to be able to know that their answers are completely confidential.* This will hopefully encourage them to be as honest as possible so we can really understand what is going on in their relationships. To this end, we again ask that you don't discuss the study with your son/daughter until they have completed it in order to avoid biasing their answers. Once the study is completed (i.e., after they have filled in and handed in the forms), you may of course discuss any related topic you feel fit. In the final form explaining the study,
we encourage participants to talk to people whom they trust (including parents) about any related issues.

Data collected during this study will be stored on a secure computer and hard copies of forms will be kept in a locked filing cabinet. Data will be kept for five years, after which time the data will be deleted. Access to this data will be restricted to Dr. Volk and his collaborators, who have signed confidentiality agreements. Parents, friends, and participants will not have access to any individual data, although they may have access to the overall study results.

The researchers will own all data collected through Qualtrics and therefore all information will be confidential. Qualtrics data are temporarily stored in the United States and therefore is subject to the Homeland Security or Patriot Act. However, data will be downloaded daily on a secured Canadian server onto a password protected lab computer. Once data is downloaded in the lab, the data will be immediately deleted off from Qualtrics.

VOLUNTARY PARTICIPATION

Your teenager's participation is voluntary. They need not participate, even if you give parental consent. There are no organizational or personal consequences for not participating other than not receiving the $15. **Again, as a parent, you do NOT have access to your adolescent's individual results. You control whether or not we are**

able to view them by providing or withdrawing your consent for their participation. In the event of withdrawal, data will be confidentially destroyed.

PUBLICATION OF RESULTS

Results of this study may be published in professional journals and presented at conferences. Feedback about this study will be available by late Spring or Early Summer on Dr. Volk's research web page (http://www.brocku.ca/volk-developmental-science-lab).

CONTACT INFORMATION AND ETHICS CLEARANCE

If you have any questions or concerns about this study, please contact the study coordinator, Dr. Volk, using the contact information provided above. This study has been reviewed and received ethics clearance through the Research Ethics Board at Brock University #15-173. If you have any comments or concerns about the study ethics, or your adolescent's rights as a research participant, please contact the Research Ethics Office at (905) 688-5550 Ext. 3035, reb@brocku.ca.

If you have any concerns about your adolescent participating as a bully, or being a victim of bullying, please feel free to discuss the matter with other parents, teachers, friends, and/or any trusted individuals. For advice on how to talk to your teen or other individuals about bullying, we recommend www.bullying.org, http://www.lfcc.on.ca/bully.htm, and the Niagara Youth Connection (905-641-2118 ext. 5592). You may also feel free to contact me, Dr. Anthony Volk, at tvolk@brocku.ca (905-688-5550 ext. 5368) with any related questions or concerns.

Thank you for your help in this project!

Please keep this form for your records.

CONSENT FORM

I agree to allow my teen to participate in this study described above. I have made this decision based on the information I have read in the Information-Consent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time and request that my son/daughter's data be removed from the study.

Name: _____

Signature: _____

Date: _____

Do you agree to allow your teen to be contacted via e-mail and participate in follow-up studies in the future?

Yes: _____

No: _____

Please return this form.

Appendix Q: Adolescent Information Sheet and Assent Form

Adolescent Relationships

Principal Investigator:
Dr. Anthony Volk, Professor
Department of Child and Youth
Studies Brock University
905-688-5550 xt.
5368
tvolk@brocku.ca

INVITATION

You are invited to participate in a study on adolescent relationships. The purpose of this study is to better understand how adolescent relationships are influenced by various aspects of their personal and social lives, such as personality, school, peers, and parents. We would like to note that a small number of the questions are about violence, sexual activity and related behaviors.

WHAT'S INVOLVED

As a participant, you will be asked to fill out questionnaires about yourself, your social group, and your basic demographics (e.g., things like age, who you live with, etc.) online using the link provided for Qualtrics, a questionnaire website. It should take you about 45-50 minutes to complete the forms. You will need to complete these questionnaires in one sitting. If you close the website or stop in the middle, there will be no way to return to the questionnaire. Only the researchers will see these responses, and the only ties to participant names will be a unique Identification (ID) number that will be used to confirm participation so that you can receive $15 cash for participating. The ID number will not be linked to any other responses to the questionnaires. They will only be linked to participant names on the consent forms, which will be stored separately in a filing cabinet separate from questionnaire responses. The original consent form, which includes the unique identification number, will only be removed from the filing cabinet in the event that the participant chooses to withdraw from the study. In such an event, the removed identification number will be used to identify the participant's response in the questionnaire database, and the data will be deleted.

POTENTIAL BENEFITS AND RISKS

Possible benefits of participation include getting to know your own relationships better, and learning about adolescent relationships in general through reflection on some of your own experiences. There also may be risks associated with participation. Some relationships are tough to think about. If you find any part of this study to be stressful, you may contact the researcher, the Brock University Ethics board, or simply stop your participation. You may also freely discuss the study with parents or friends if you need to, although we would ask that you try not to talk to someone before they complete the study on their own (e.g., don't share answers until both of you have completed the study unless you feel it's really necessary). Sharing answers before the study ends can distort and/or change your own natural answers.

We do not ask for any specific incidents or events, so **there is no personal or legal liability associated with any of your answers, nor are we legally obligated to disclose any of your answers to our questions (including abuse and harm)**. If you have any concerns about specific behaviours or incidents, we strongly suggest that you discuss them with trusted individuals. These individuals could be parents, teachers, friends, or other trusted adults. You may also

contact the Kids Help Phone at: http://www.kidshelpphone.ca/en/ (1-800-668-6868).
It is important to know that you do not need to tolerate any form of abuse!

You will receive $15 cash for your participation in this study. You will receive this payment once you have completed the questionnaires and returned the consent and assent forms. Once receiving the $15, you will have to sign a sheet for our records indicating you have received the payment.

CONFIDENTIALITY

You will only be identified by a unique number that is tied your name. There is no way for anyone to identify the data beyond this number. Unique, identifiable data (such as exact date of birth, name, names
of friends and family) will not be collected. Your parents will have to consent to your participation, **but they will not be able to read your answers** (*although they can request that any such data be deleted*). You also do not have to reveal your answers to any of your friends, peers, or anyone else other than the researchers in this study. The only exception is that Dr. Volk will have a copy of your consent form, with your participation number, stored in a password protected computer in his lab, so that you can later request that your data be removed from the study if you wish. No other individual will have access to this link to your name, and Dr. Volk will ONLY access this information if you contact him asking to remove your data from the study within 5 years. Your name or ID will in no other way be involved with the data
analysis or presentation.

Data collected during this study will be stored on a secure computer. Data will be kept for five years, after which time the data will be deleted or shredded. Access to this data will be restricted to Dr. Volk and his collaborators, who have signed confidentiality agreements. Your parents, friends, participants, and coaches will not have access to any individual data, although they may have access to the overall study results. So you do not have to worry about anyone finding out your answers, or about anyone following up on your answers, or about any consequences of the answers you provide. Your responses will be confidential and the only links between your name and ID number will be stored separately from your questionnaire responses, with access only by Dr. Volk.

In order to best protect your confidentiality, we suggest completing the online questionnaires in private and on your own. This will limit the possibility of others (e.g., parents, siblings, friends) from seeing your responses.

The researchers will own all data collected through Qualtrics and therefore all information will be confidential. Qualtrics data are temporarily stored in the United States and therefore is subject to the Homeland Security or Patriot Act. However, data will be downloaded daily on a secured Canadian server onto a password protected lab computer. Once data is downloaded in the lab, the data will be immediately deleted off from Qualtrics.

VOLUNTARY PARTICIPATION

Participation in this study is purely voluntary. Whether you participate, or what questions you answer, is completely up to you. If you want to withdraw from this study at any time, you may do so without any penalty other than not receiving the $15 and your data will be confidentially destroyed in the event of withdrawal. This research is not linked to your organization, so there is

no organizational penalty if you do not participate. If you would like to withdraw your data after you have completed the study, you must provide your unique identification number as it is the only way we have to identify your data. Please keep your ID number attached to this sheet in a safe place in case you wish to withdraw from the study.

However, before you can participate in this study, you MUST obtain parental consent. If you are reading this form, you should have already obtained parental consent. If you haven't, please provide your parents with the appropriate forms immediately. If you do not provide parental consent, you may NOT participate in this study. Again, your parents will not have direct access to your answers, but they do control whether WE are able to see your answers or not. If your parents do provide consent, you are not obligated to participate. That is your own decision. So you need their consent to participate, but that consent doesn't force you to participate.

PUBLICATION OF RESULTS

Results of this study may be published in professional journals and presented at conferences. Feedback about this study will be available by late Spring or Early Summer on Dr. Volk's research web page (http://www.brocku.ca/volk-developmental-science-lab).

CONTACT INFORMATION AND ETHICS CLEARANCE

If you have any questions about this study or require further information, please contact Dr. Volk using the contact information provided above. You can also use this contact information if you have any questions about what the questionnaires mean, or if you need any help completing the questionnaires. If you have
any questions while you are filling out the forms, please feel free to contact Dr. Volk. This study has been reviewed and received ethics clearance through the Research Ethics Board at Brock University # 15-173 VOLK. If you experience any stress while participating in this study, please refer to debriefing form for a list of agencies you may contact.

If you have any comments or concerns about your rights as a research participant, please contact the Research Ethics Office at (905) 688-5550 Ext. 3035, reb@brocku.ca.

LINK TO QUALTRICS

If you are interested in participating, please follow this link to the Qualtrics website and use the following password to proceed:

Link: **https://goo.gl/LWcMKK**

Your ID number: _____

Thank you for your help in this project!

Please keep this form for your records.

ASSENT FORM

I agree to participate in this study described above. I have made this decision based on the information I have read in the Information -Assent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this assent at any time.

Name: _____

Signature: _____ Date: _____

ID number: _____

Would you like to be contacted for follow-up studies in the future?

Yes: _____

No: _____

If Yes, please provide your e-mail address:

_____

Please return this form.

Appendix R: Monetary Compensation Participant Form

Thank you for participating in our study. Please indicate your name and the date.
This is to acknowledge that you have received $15 for participating in Dr. Volk's study on Adolescent relationships.

Name Date

Appendix S: Further Details on Multivariate Assumptions

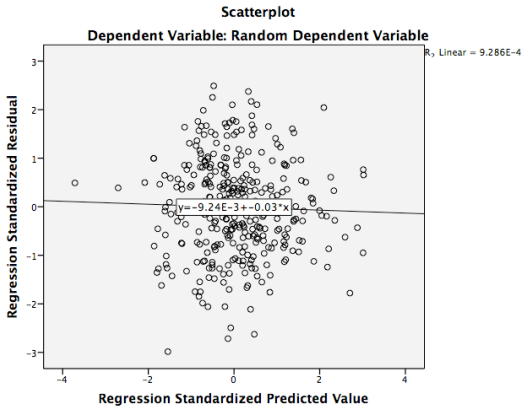
The two groups of analyses in the current study—canonical correlation analysis and path analysis—required some overlapping assumptions to be met. These overlapping assumptions related to multivariate normality, multivariate outliers, linearity, and homoscedasticity. A simultaneous multiple regression was conducted with a random dependent variable (i.e., a computed variable with random values assigned) to ensure that all independent or exogeneous variables (i.e., Age, Sex, Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, Openness, Callous-Unemotional, Narcissism, and Impulsivity) did not contribute to a significant model as a whole, $F(11, 347) = .633$, $p = .800$, and that there were no significant individual predictors within the model (all $p > .05$).

With regards to multivariate normality and outliers, the simultaneous multiple regression with the random dependent variable and all independent variables generated Mahalanobis distances. Those Mahalanobis distance values were evaluated to determine whether there were any specific cases that had an irregular pattern of scores across all of the dependent variables, or that were far from the centroid (i.e., point created by the mean of all variables) of the remaining cases (Pallant, 2013). The critical chi-square value with up to 11 dependent variables at a suggested alpha level of .001, is 31.265. (Tabachnick & Fiddell, 2013).

One multivariate outlier was present that surpassed the critical chi-square value, with a higher Mahalanobis Distance value of 48.072 (Cook's Distance = .137). The next highest Mahalanobis Distance value was 27.97, which is just below the cut off of 31.265 as indicated by the critical chi-square value listed above. However, the multivariate

outlier was included in the current study, as the outlier did not have an undue influence on the results of the model, and the maximum Cook's Distance score was .137 (i.e., the multivariate outlier's Cook's Distance score), which was below 1.00 as suggested by Tabachnick and Fiddel (2013, p. 75) (Pallant, 2013). Leverage values were all below a maximum of .134. As previously mentioned in the preliminary analysis section, the multivariate outlier did not influence the pattern of results in any of the analyses and it Cook's Distance and Leverage values were low.

For the assumptions of linearity and homoscedasticity, scatterplot matrices, plots of standardized residuals and predicted values were examined. The standardized residual and predicted values plot generated for the random dependent variable with all independent variables showed no association, as indicated by the horizontal line of best fit (*see* Scatterplot below). Additionally, all variables met the assumption of linearity and had straight, linear relationship with predicted scores on each of the dependent or endogenous variables in the current study. The assumption of homoscedasticity was also met, as there were no funnel shapes present among the cases on each of the pairs of variables. For these reasons, we can be confident that the model parameters generated in the analyses within the current study are genuine.



For the assumption that none of the independent or exogenous variables had multicollinearity, bivariate correlations were examined. The bivariate correlations revealed that no relationships surpassed the cut off of .70 for multicollinearity (*see* Table 3), and the assumption of no multicollinearity was met. Also, referring back to the simultaneous multiple regression conducted with a random dependent variable and all independent variables—used within Model One and Model Two—collinearity diagnostics showed that the Tolerance values were all above .599 or above, which is considerably higher than the .10 or below cut off for multicollinearity (Tabachnick & Fiddell, 2013). In addition, the VIF values were all below 1.668, which is well below the suggested cut off of 10 or above for multicollinearity (Tabachnick & Fiddell, 2013). With independence of residuals, the Durbin-Watson value was 2.067 and is between the values of 1 and 3 (Tabachnick & Fiddell, 2013).